AUGUST 8, 1960

PAPER TRADE JOURNAL

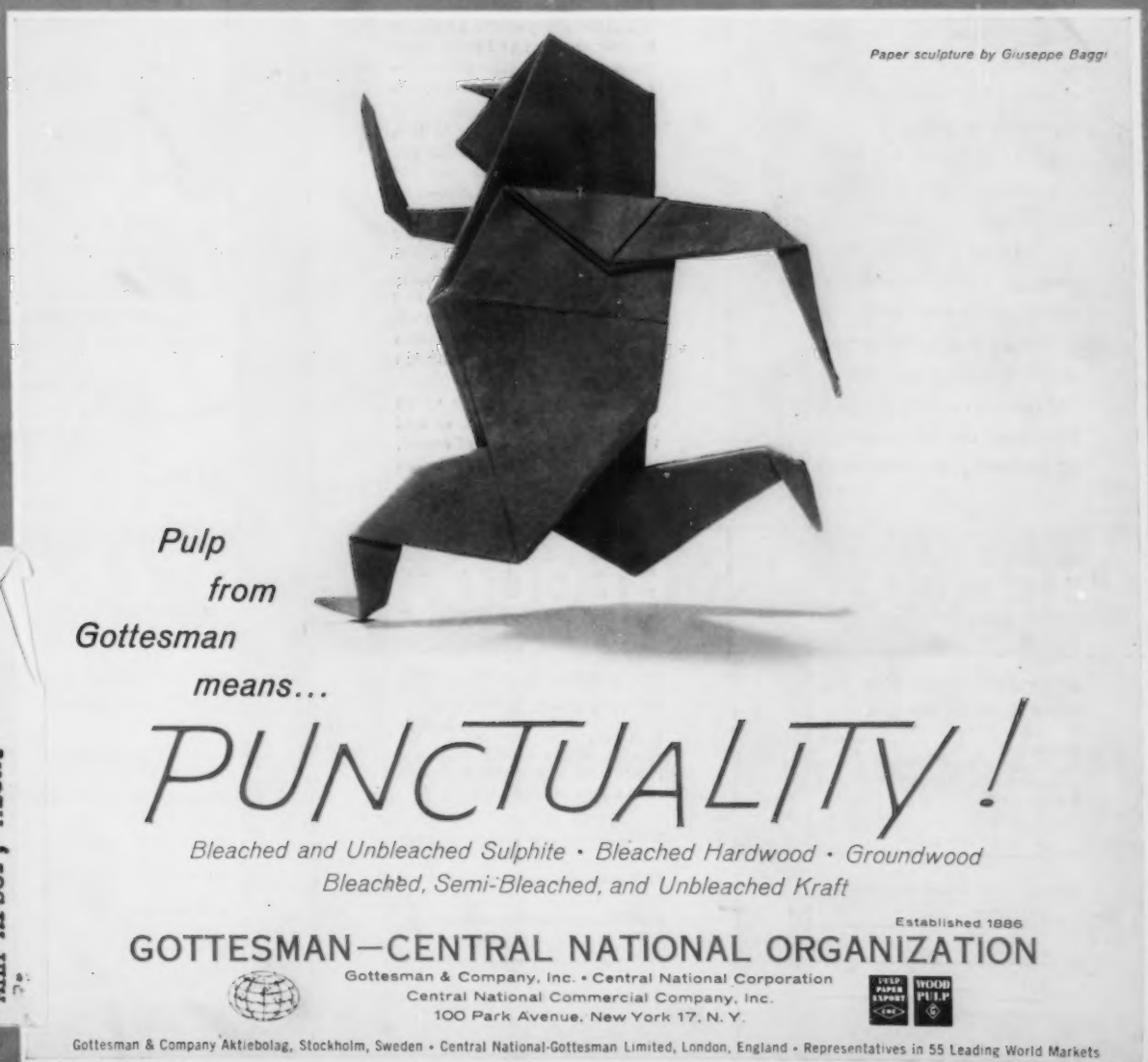
How About Electronic Instruments?

Doubling a Laboratory's Efficiency

Special Pallets for Lapped Pulp

New ClO_2 Tower Saves PFI $350 Daily in Bleach Chemical Alone

Headbox Equipment, Part II—New Designs for High Speed Machines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BECCO fmc

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Dept. PTJ-H

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Years of experience in paper and pulp processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

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No. 32 — H_2O_2 Bleaching of Chemicals and Mechanical Pulps.

No. 47 — Peroxide Bleaching of Pulps.

No. 48 — High-Density Pulp Bleaching.

No. 64 — Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps.

No. 65 — Peroxide Bleaching of Southern Pulps.

No. 66 — Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.

No. 91 — Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.

No. 92 — Peroxide Bleaching of Chemical Pulps.

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*the finished roll of superb new quality!

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In the action photograph above a new Cameron Imperial winding system, integrated from unwind to rewind, (246″ trim width, 72″ rewind capacity) is running at speeds up to 5000 fpm* on 28 to 85 lb. coated book papers. Here are some of the features of this job-fitted Cameron system:

Roll control starts with a Cameron H3PMR continuous duty unwind brake responding to signals from a Cameron cam controlled adjustable automatic tension sensing system. Easy setups with tight starts and firmly set cores are assured by such features as the Cameron hydraulic riding roll lift, and hydraulic down-pressure control. Other features which contribute to superb roll quality are the riding roll driven at both ends for even torque distribution, differential speed rewind drums which play a star role in Cameron automatic roll density control, and the Cameron isolated gear box which drowns main drive vibration. Minimizing downtime and contributing to high productivity are such features as the Cameron automatic shaft injector, the Cameron hydraulic roll lowering table with Cameron automatic shaft puller and core loader, the air-operated Cameron Quick-set shear cut slitters, and the centralized control panel.

We invite you to visit the unique Cameron Research and Development Service at Dover, N. J. See the operation of your own job-fitted "pilot" system, perfectly integrated from unwind to rewind, and engineered by specialists to meet your precise requirements.

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AA-382

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4. **No corrosion of screens or other metal**
5. **Efficiency is unaffected by chemicals in the furnish**
6. **Complete rinsing out**

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REMEMBER THESE DATES

August 22-24. TAPPI Alkaline Pulping Conference, Multnomah Hotel, Portland, Ore.

September 6-9. CPPA Summer Meeting, Technical Section, Banff Springs Hotel, Banff, Alberta, Canada.

September 18-21, NPTA Semi-Annual Convention, Conrad Hilton Hotel, Chicago, Ill.

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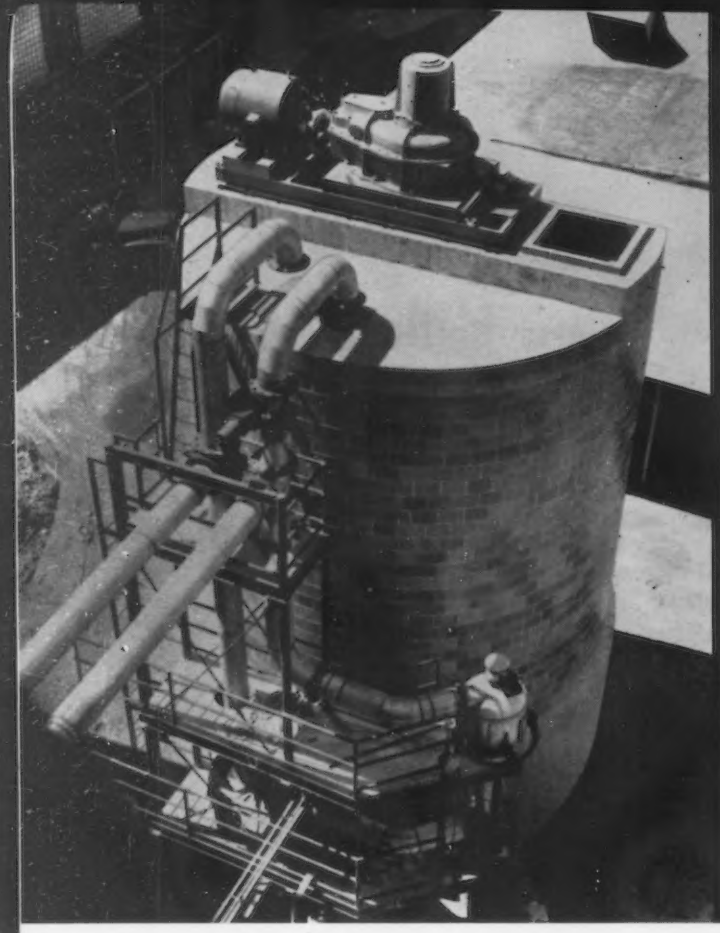

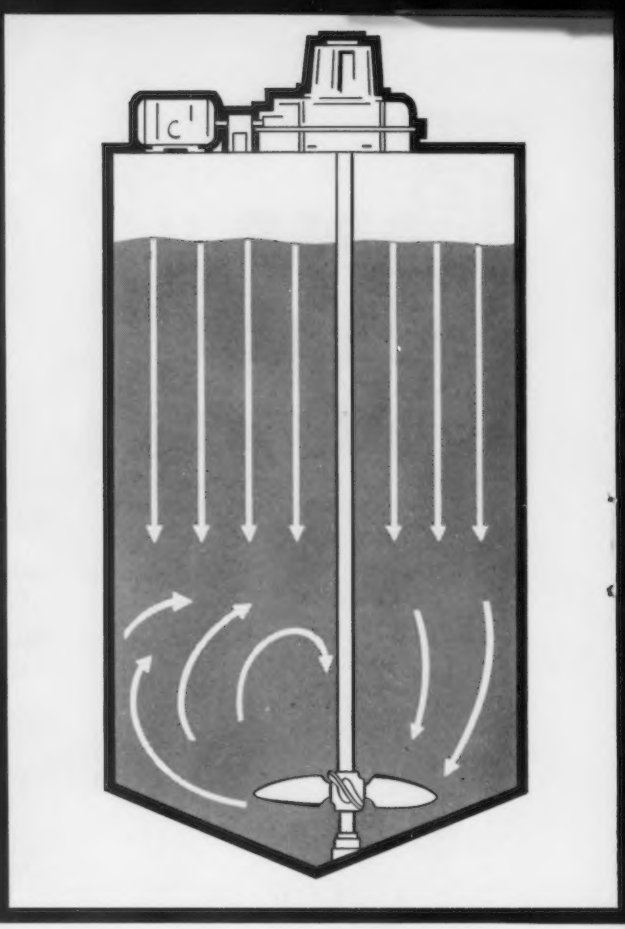

How to spot a stock fluctuation before it happens

Engineers have found a fast, sure new way to get stock ready for its trip through St. Regis Paper Company's big mill at Pensacola, Fla.

Heavy stock—averaging 6%—moves out of this storage chest at a consistency that's uniform and *known in advance.*

There are no sudden up-and-down swings. Feed stock fluctuations that occur are smoothed out—end result is a fully predictable effluent. Thus it's easier for mill engineers to control the entire highly automated circuit through which the stock flows on its way to the machine.

How does it work? Sitting on top of the chest is a LIGHTNIN Mixer that develops 200 horsepower. A steel shaft reaches 28 feet down into the chest's cone bottom, where a fast-turning 8-foot diameter propeller gives the heavy stock a powerful churning.

Mixing takes place in a sharply-defined zone in the bottom third of the unbaffled chest. Within this controlled zone, stock is fully uniform. Above the agitated zone, stock is relatively motionless, but it moves in a definite plug-like flow into the agitated zone as mixed stock is drawn off. Time cycle and flow path of all stock—mixed and unmixed—are completely predictable.

How you can apply it. Wherever you want uniform stock to help your mill system run efficiently, you can get it with LIGHTNIN Mixers in your chests or tanks.

You get the precise power level you need to accomplish the job you want done within a given time. Results are guaranteed.

To get the facts on this tight-control stock mixing method, now working effectively in more than 100 mills, call in your LIGHTNIN Mixer representative (listed in Thomas' Register). Or write us today.

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MIXCO fluid mixing specialists

Ask for these illustrated bulletins describing LIGHTNIN Mixers:

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In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 19, Ont.

Trends

Canadian Woodpulp Shows Broad Increases

Canadian woodpulp production, consumption, and exports all gained in June and the first six months, as compared with a year ago. Output for the month was up 5% from 1959. In the first half, production was 6% ahead of last year. Pulp exports in the first six months were 7% above a year ago. In June, export shipments were 6% higher than in June, 1959.

Merchant Sales Show June Gains

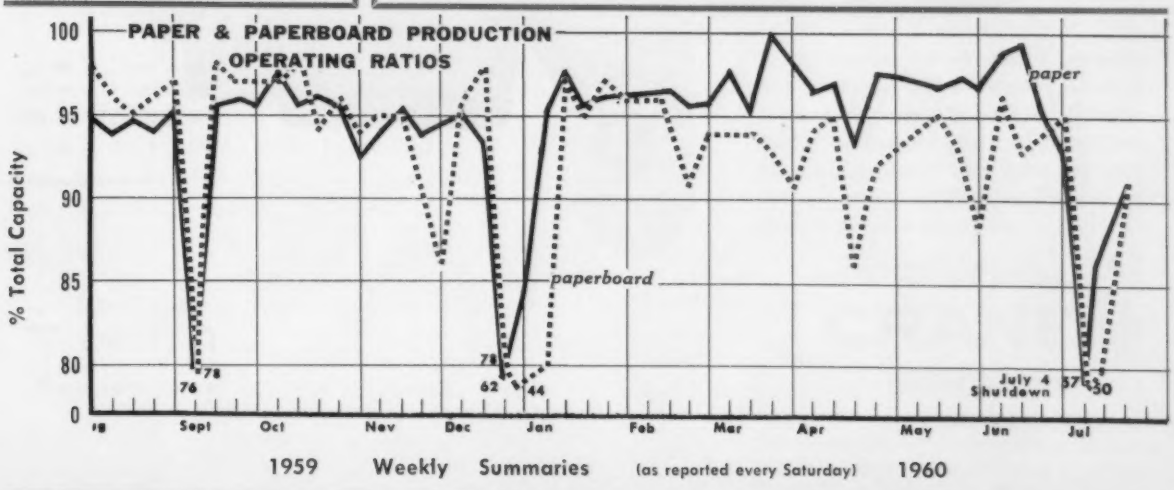
Sales index in June for merchant sales of wrapping paper soared to 150.4, the second highest point in history, according to the National Paper Trade Ass'n. Volume was up 8.9% over May, more than double the normal increase of 3.9% from May to June. Although second quarter totals were slightly less than last year's, the first half was the best ever recorded at 1.8% over the corresponding period in 1959. June sales were 1.4% above the same month a year ago.—Sales of fine papers by merchants in June reached the second highest level in history with the index rising to 162.6. The advance of 1.3% over May was in strong contrast to the normal decrease from May to June of 1.2%. Quarterly totals were the highest ever recorded, at 1.6% ahead of the first quarter. Combined sales for the first six months also reached record proportions, 4.6% above the corresponding period in 1959. June sales were 4.6% greater than in the same month last year.

Canadian Board Exports Up 50%

Canadian paperboard production gained substantially in the first six months largely owing to increased exports. Output in the first half was up 7%, while exports were ahead 50%.

Headbox Design Work Summed Up

Paper machine headbox design has been more intensively investigated in the past decade than ever before. In this issue we present the second part of a three part comprehensive survey of this work on headboxes, flow distributors, slices, etc.



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. . . a fast-moving program of planned expansion, product development, and streamlined distribution to help our customers meet the competitive challenges of the Sixties.

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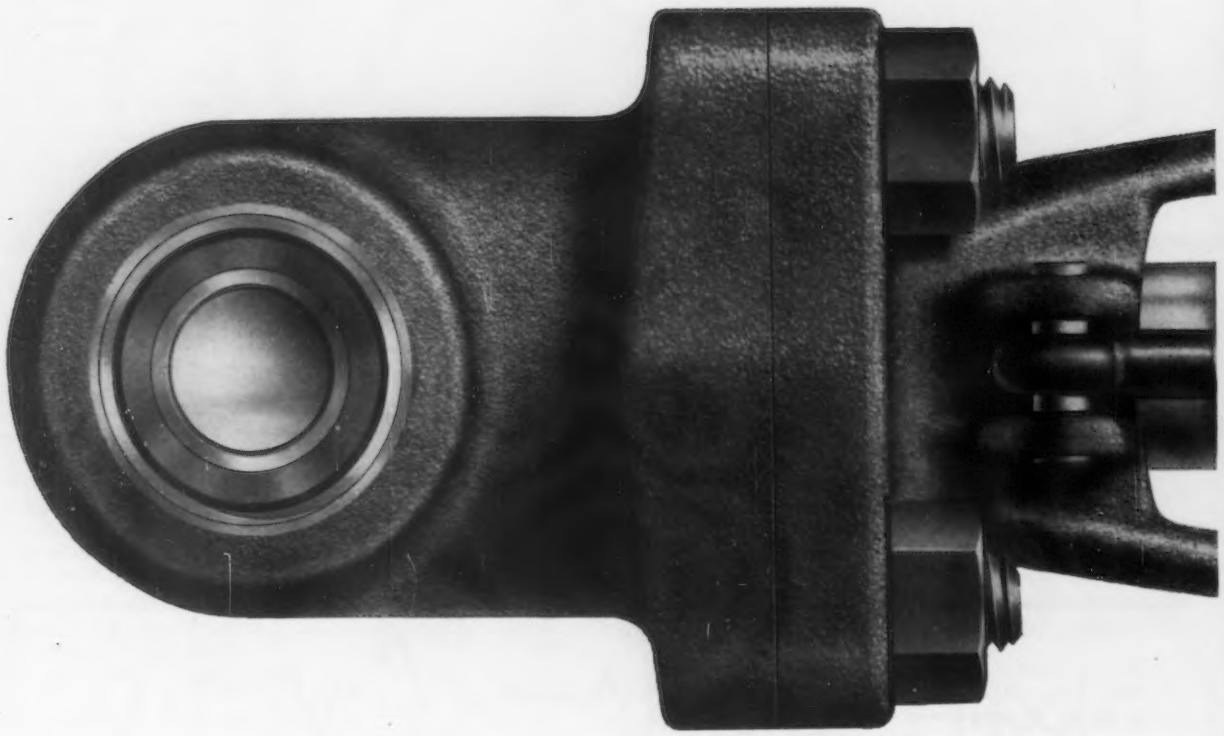

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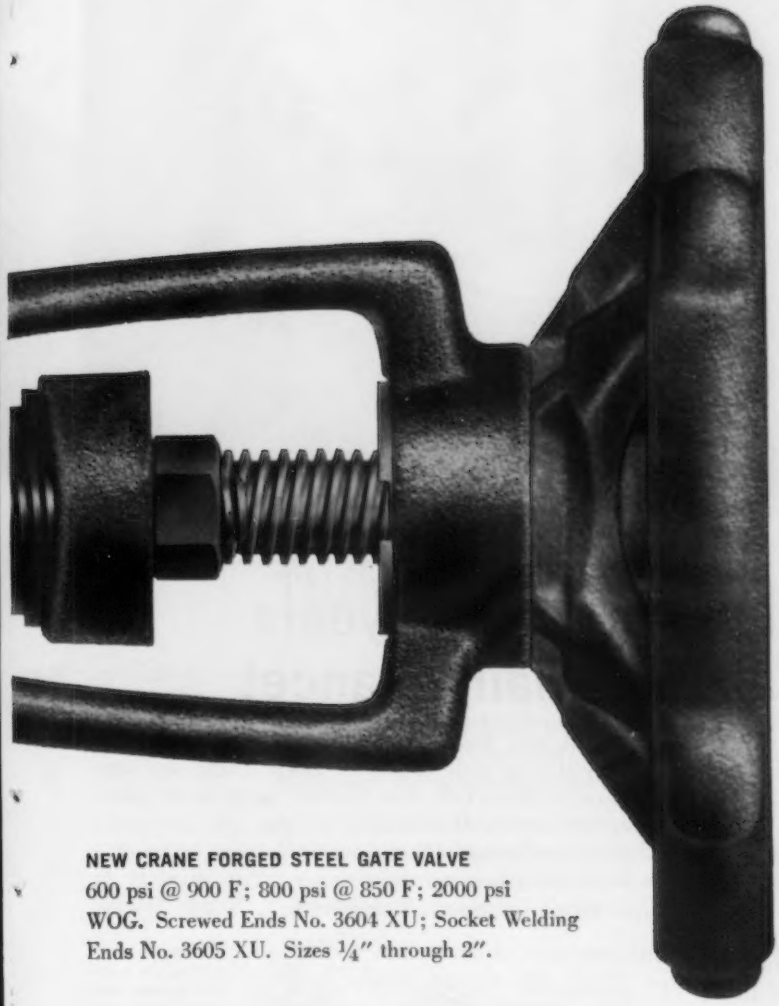
THE NEW SMALL FORGED STEEL GATE VALVE



NEW CRANE FORGED STEEL GATE VALVE
600 psi @ 900 F; 800 psi @ 850 F; 2000 psi WOG. Screwed Ends No. 3604 XU; Socket Welding Ends No. 3605 XU. Sizes ¼" through 2".

This is a whole new valve, not just one with a new feature added. This redesign incorporates all the features you told us you wanted plus a few others we know will make this valve a better buy in terms of longer service life, less maintenance, easier and faster servicing.

Like the new "bow-leg" yoke, which for the first time gives you plenty of hand room for easy stuffing box maintenance. And like the long-life braided asbestos packing, with Inconel wire insert. The "universal" trim that can be used for either oil or steam, eliminating many of your stocking problems. The spiral wound stainless steel bonnet gasket with asbestos filler, made blowout-proof with a male-female joint.

But what we really want you to remember, more than any single feature, is that this Crane valve is the newest—all new—valve on the market . . . well worth considering when you need small, high-pressure steel gate valves. We'd like you to compare this new valve with any other comparable valve feature for feature.

Your local Crane distributor has technical literature and a complete selection of these valves right in stock. Call him on small steel gates. In fact, he's your best bet to call no matter what valve you want because he carries the broadest line of quality valves in the world.

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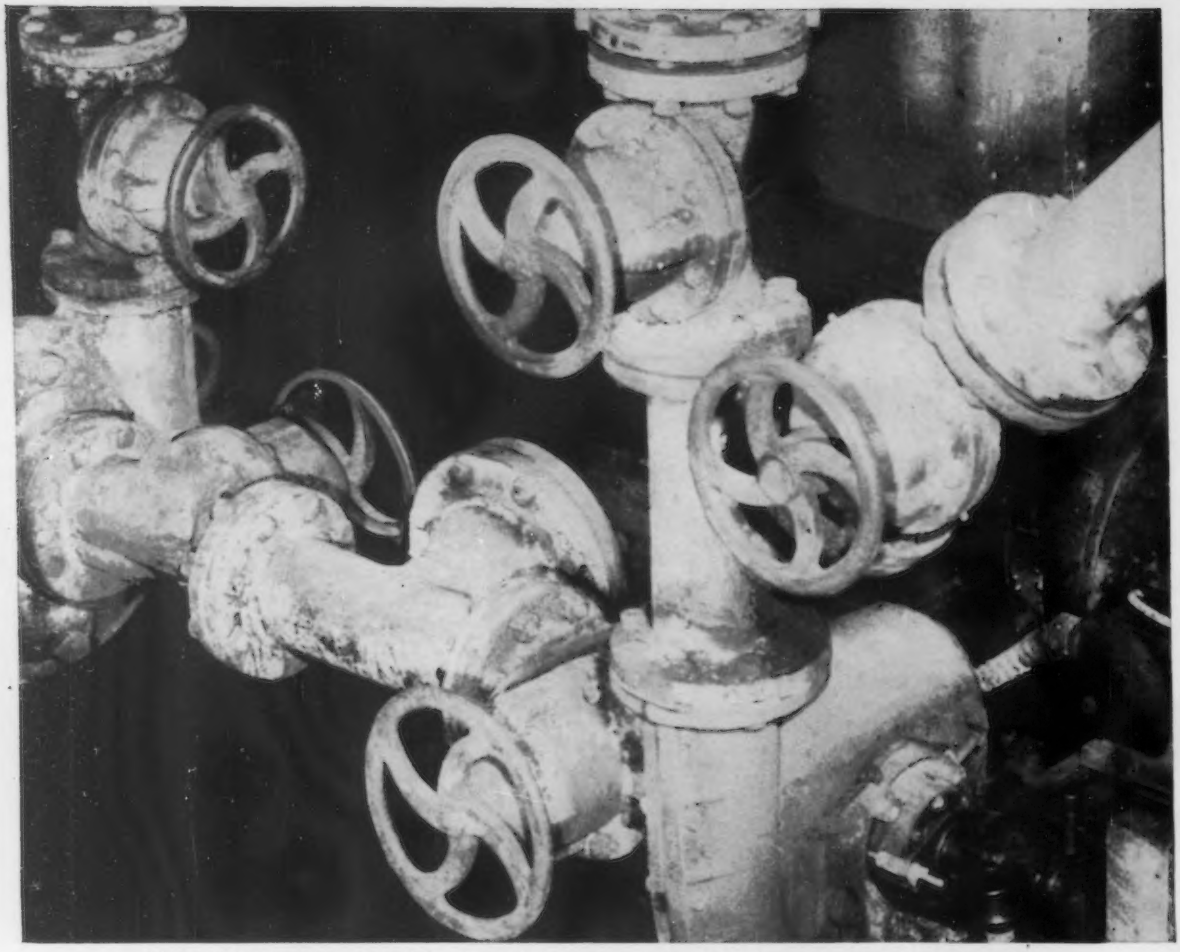


Cluster of 5 Grinnell-Saunders Valves in electrolytic plant of the S. D. Warren Company, Cumberland Mills, Maine, where chlorine solution is made. The 5" rubber-lined Grinnell valves with rubber diaphragms are on lines going from storage tanks to hardwood bleach. Valves here have been in use 9 years with very little service required.

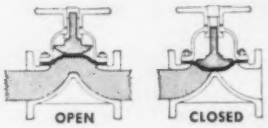
In use on chlorine lines 9 years with practically no maintenance!

It's the design of the Grinnell-Saunders Diaphragm Valve, plus selection of the correct body and diaphragm materials, which make it long-lasting.

The product in process is isolated from the valve's working mechanism at all times, so there can't possibly be any corrosion from that source. No product contamination can occur through contact with the operating mechanism, because the diaphragm effectively "seals off" the fluid in the line. The only part of the valve normally subject to wear is the diaphragm — which can easily be replaced without removing the valve from the line.

You can have Grinnell-Saunders Diaphragm Valves in a wide choice of body, lining and diaphragm materials. For further facts about Grinnell-Saunders Diaphragm Valves, see Grinnell's insert in Chemical Engineering Catalog, or Sweet's Plant Engineering File — or write directly to Grinnell Company, Providence 1, Rhode Island.

In the "open" position, the diaphragm lifts high for streamline flow in either direction.



In the "closed" position, the resilient diaphragm seals tightly, even over fibrous particles and grit.

GRINNELL-SAUNDERS DIAPHRAGM VALVES

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THE NET OF IT—Alpha® Protein helps merchandise move

In today's sweeping trend toward self-service, products sell best when customers "get the message". This means strong visual appeal of the package itself . . . sparkling presentation to promote the product and the brand name.

Alpha Protein has come into wide application as the adhesive for coated paperboard used for fine folding cartons. It makes possible the level, more uniform surface needed for the detailed reproduction of fine-screen halftones with maximum depth and clarity. It offers extra brilliance for instant vivid display of the all-important brand name.

Alpha Protein works economic and production miracles on any coating equipment: brush coaters, reverse roll coaters, air-knife, trailing blade, or high-solids roll coaters. Principal benefits are faster machine speeds . . . less drying time . . . higher coat weights.

This is the net of it . . . but may we tell you the complete story? Your inquiry will receive prompt attention.

25

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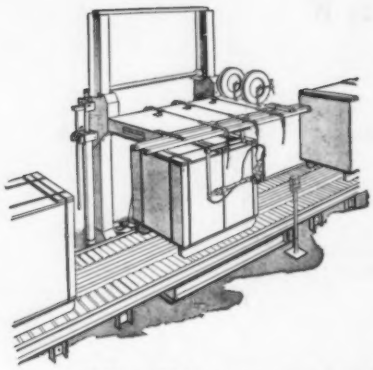
This is a sample of 4-color process lithography on Alpha Protein-processed paper

Here's proof: you can reduce paper slippage the Signode way

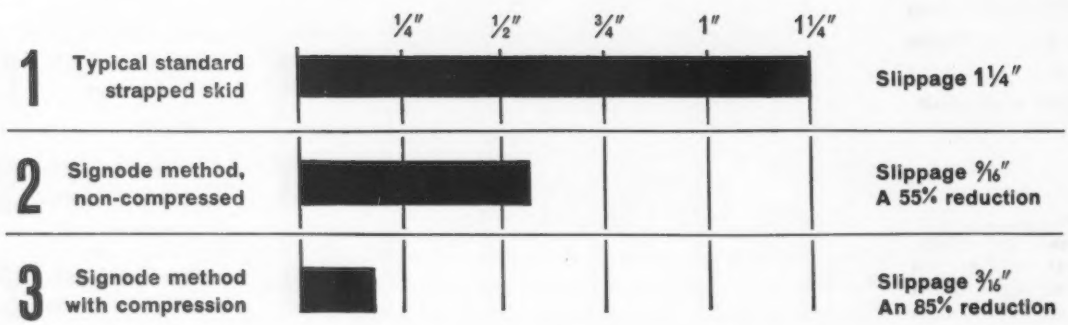
...55% without compression



...85% with compression

Signode engineers ran accelerated impact tests on an impact machine, comparing typical standard strapped paper skids with skids strapped the Signode way without compression and skids strapped the Signode way with compression. Here are the results.

PAPER SLIPPAGE, STRAPPED PAPER SKIDS, AFTER 5 IMPACTS



The Signode way, with or without compression, actually costs you less for materials! And it means top value paper for your customer... more usable sheets per skid; fewer customer complaints; flat, square skids your customer (and you) can triple deck. Write today for all the facts.

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PAPER TRADE JOURNAL
WEEK OF AUGUST 8, 1960

Western Kraft Adding California Holdings

Western Kraft Corp., a Portland-based pulp and paper company, has signed a 10-year lease with an option to buy two paper mills and three corrugated contained plants in California, according to Ira C. Keller, Western's president.

Involved in the deal was purchase of the businesses of the California plants as well as the leasing of the thirty-one million dollar plants and machinery.

Properties taken over by Western are; Kalof Pulp & Paper Co., and the corrugated box plant of Cadillac Container Co., of Port Hueneme, Calif.; the corrugated mill and box plant of Quaker Container Corp., at Richmond, Calif.; and the corrugated container plant of Quaker at Veron (Los Angeles).

Purchase of the properties will result in an expansion of Western Kraft's 250-ton a day pulp and paper mill at Albany.

"The tonnage consumed by these (California) properties will make it possible for us to expand our Albany mills," Mr. Keller said, adding that plans for this expansion are already being worked on.

Mr. Keller said this expansion will result in the building of a second paper machine at Albany, increasing the mill's capacity there from the current 90,000 tons a year to about 135,000 tons a year. He described the project as a "multi-million dollar project."

In addition to the Albany operations, Western Kraft operates manufacturing plants at Wenatchee, Wash., Beaverton and Compton, Calif. A fourth container plant, owned by an affiliate, Western Corrugated Inc., is at San Leandro, Calif.

Western Kraft properties employ 750 people and produce close to one million corrugated containers a day.

Scott Employees Get Pay Boost; Other Benefits

A four per cent pay increase with an eight cent minimum, an increase in holiday pay and military leave allowance were highlights of the labor contract settlement at Scott Paper Co.'s Winslow and Madison plants.

The contract expired June 1, 1960, but had been mutually extended by the parties. The new increase raises the male base rate to $1.88 per hour. The straight time earnings at the plant before the increase were approximately $2.11 per hour.

George F. Blessing, general manager of the Northeast Division headed the negotiations team for Scott. Ralph W. Leavitt, vice president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, was chairman of the union group.

The wage rates agreed upon are retroactive to May 30, 1960. The contract will run to June 1, 1961. Contract terms cover about 1000 employees at Winslow and Madison.

Zimmerman, President Howard Paper Mills, Dies

Funeral services for Wilbur B. Zimmerman, president of Howard Paper Mills, Inc., Dayton, Ohio, were held in Franklin, Ohio, July 30. Burial was in his native Urbana, Ohio.

Mr. Zimmerman was drowned July 20 when his boat capsized in Lake Erie near Erieau, Ontario, Canada. His body was recovered July 27.

Mr. Zimmerman came up through various executive positions with the Howard Paper Mills, Inc. organization. He became president in January, 1955.

He was born and raised in Urbana and joined the Howard Paper Company there in 1915 as a laborer in the finishing room. In 1917 he left to join the Navy, where he served until 1921, then came back to Howard Paper.

In 1925 he moved to Franklin to join the newly formed Maxwell Paper Company as mill manager. He was named vice president in 1927.

W. B. Zimmerman

In 1946, Mr. Zimmerman was elected executive vice president of Howard Paper Mills, Inc., when it was formed by the consolidation of the Howard Paper Company, Urbana; the Maxwell Paper Company, Franklin; and the Dayton Envelope and Aetna Paper Companies of Dayton.

During his term as president, Howard Paper Mills, Inc., was merged into the St. Regis Paper Company on June 29, 1960.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending July 23, 1960, at 90.9 per cent compared with 84.2 per cent revised, for the preceding week. The ratio was 94.9 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending July 23, 1960, at 91 per cent, compared with 74 per cent for the preceding week and 94 per cent for the corresponding week a year ago.

(Detailed Statistics on page 42)

ALP Greets 3000 at Sitka Mill Dedication

Alaska Lumber & Pulp Co., largest industrial enterprise to be built in Alaska since statehood, was host to over 3000 distinguished guests from Canada, Japan, and the United States, during the company's recent dedication ceremonies. Shown in photograph delivering greetings from the Japanese ambassador to the audience is G. Watanable (at microphone), vice minister of Agriculture and Forestry. Standing next to D. J. Doswell (L.), p.r. manager for ALP, is T. R. Stein, mill manager. Other speakers (seated) are: E. Shennet, mayor of Sitka; B. Rubens, Rubens & Pratt, engineers; H. Cavin, chief engineer, ALP; B. F. Heintzleman, ex-governor of Alaska; T. Ishizaka, president, Federation of Economic Organizations, H. Wade, Secretary of State, Alaska; T. Sasayama, president, ALP; R. E. McArdle, chief, U. S. Forest Service; E. Kashu, chairman, Mitsubishi Rayon Co., Ltd.; and A. L. Wadsworth, vice president, Dillon Read & Co., Ltd. Located nearby to Sitka, Alaska Lumber & Pulp Co. is a dissolving grade pulp mill producing 340 tons per day by the magnesium bisulphite process. It is a wholly-owned subsidiary of Alaska Pulp Co., Ltd., a Japanese corporation; all of its production is sold to Japan's rayon and paper mills. The full story of ALP's operation is related in the Feb. 15, 1960, Paper Trade Journal.

Low Cost Competitor for Paper

A new flexible plastic film manufactured from styrene foam and priced to be competitive with paper was announced recently by Monsanto Chemical Co.'s plastics division. The new film, called Santofome is said to be waterproof, sanitary, lightweight, non-abrasive and grease resistant, in addition to having good insulating and cushioning properties.

The price of the new material ranges from about $4.00 to $7.00 for 1000 square feet. It is available in thicknesses from .010 to .030 inches and in rolls 36 inches wide and up to 7,000 feet long. These prices approach those of many grades of paper, and are lower than some types used in packaging and printing.

As a film or laminate Santofome is suitable for frozen food packages, wrappings and liners for fragile or highly polished products and components; and for containers where thermal insulation is desirable. Its low cost indicates its use in disposable items such as picnic plates and place mats.

For uses where high tear strength is required Santofome may be bonded to paper or other flexible materials.

Columbia River Paper To Expand Salem Facilities

The Columbia River Paper Co. of Vancouver is planning to expand its facilities in Salem, Ore. Plans call for construction of a warehouse and finishing plant in an industrial area near downtown Salem.

Donald C. Ellsworth, Portland, vice president and secretary of the company, said the warehouse is needed because of "crowded conditions." The finishing plant will be used for the cutting and trimming of writing paper.

Study Indicates Strong Basic Demand for Paper

A study titled Basic Demand for Paper and Paperboard by L. T. Stevenson of Tucker, Anthony and R. L. Day indicates that there has been under production rather than over-production in both the paper and paperboard industries. Paper, excluding newsprint, has just about caught up with consumption demand, while paperboard production was below consumption demand.

This indicates a strong position for the paper industry in general says Mr. Stevenson in that inventories have not been accumulating in the grades of paper covered by his study, in spite of production rates. In newsprint, which is not covered, the inventories in sight have dropped from a 47 day supply in January to 39 days at the end of June.

It is expected that the last half of the year, productionwise, will bring the annual totals slightly above the original forecast of 35,300,000 tons. Mr. Stevenson's analysis indicates that the total volume for the year will be higher, possibly by another 200,000 tons to a record of about 35½ million tons.

During the first five months the cumulative production of the paper segment, namely, all papers, excluding newsprint and building paper, was seven per cent ahead of last year and paperboard, including wet board, was two per cent above, while building paper and board production was three per cent below last year's.

DEPT. OF COMPLETE MISINFORMATION

The following are some of the more interesting mis-statements (?) in an article on newsprint in the August 1 issue of Time:

- Used newsprint is low in wood fiber.
- Newsprint is deinked by grinding, mixing with fresh pulp and subjecting the batch to a strong chemical bath.
- Magazine paper has a 30 per cent fiber content compared with newsprint's 15-20 per cent.
- U. S. Newspapers pay a "near prohibitive" $134 a ton for newsprint.
- Waste magazine paper is cheaper in Chicago than used newsprint (It is by 50 cents to $1.00 a ton).

There is a Vickery Press Felt Conditioner for every size and speed of felt, on new machines or old. This one is for a big, high speed paper machine. It is equipped with traveling headers, adjustable vacuum boxes for trim of felt and vertically, and hydraulic drive with control panel for quick, convenient adjustment to felt speed.

Are You In CONDITION To Keep Running?

Why let your felts get out of condition or limp along with outmoded, outworn conditioning equipment? Nothing is more destructive to production and profits than frequent and needless midweek shutdowns to unclog dirty felts.

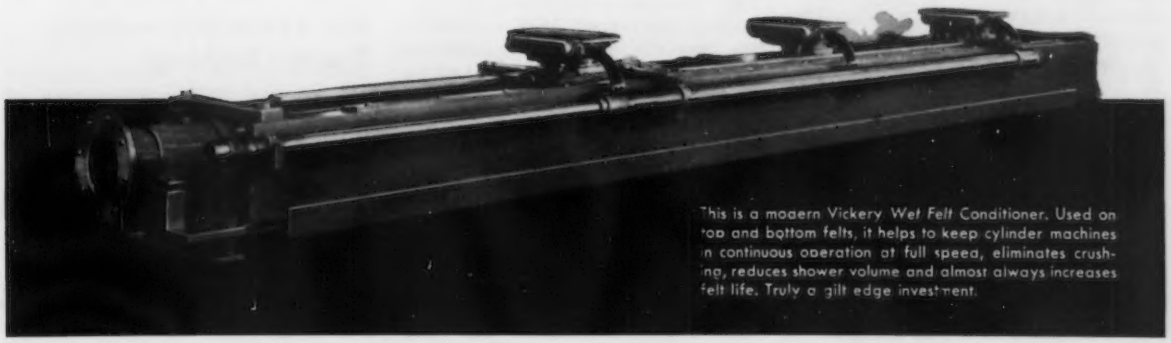
Modern Vickery Felt Conditioners, such as the ones pictured, eliminate those costly shutdowns, permit maximum machine speed right through the week, and assure maximum moisture removal at the presses where it costs least.

Ask us to show you how quickly continuous, modern felt conditioning pays off

BIRD MACHINE COMPANY, South Walpole, Mass.

Regional Offices : ATLANTA 9, GEORGIA • EVANSTON, ILLINOIS • PORTLAND, OREGON

Canadian Manufacturers of Bird Machinery: CANADIAN INGERSOLL-RAND COMPANY, Ltd., Montreal



This is a modern Vickery *Wet Felt* Conditioner. Used on top and bottom felts, it helps to keep cylinder machines in continuous operation at full speed, eliminates crushing, reduces shower volume and almost always increases felt life. Truly a gilt edge investment.

PAPER PEOPLE

P. C. Nagel, Jr.

H. B. Wenberg

Nicolet Paper Advances Executives

Paul C. Nagel, Jr., has been named assistant treasurer and Herbert B. Wenberg has been appointed mill manager for Nicolet Paper Corp., of West DePere, Wis., it was announced by Arthur Snapper, president of Nicolet.

Mr. Nagel was recently elected vice president, finance and planning, and treasurer of Milprint, Inc., of which Nicolet is a subsidiary. Before joining the Milwaukee packaging manufacturer, he was a financial and organizational consultant with McKinsey & Co. He also was controller of CBS radio division and senior accountant for Arthur Anderson & Co.

Mr. Wenberg, who has been assistant manager of Nicolet since 1954, joined the mill in 1936. A graduate of Lawrence college, he worked first in Nicolet's finishing department as a chemist, and from 1947 to 1954 was technical superintendent of the plant. Mr. Wenberg holds a patent on "Plasticizing of Glassine Papers" and was co-inventor of a patent "Machine for Applying Plasticizer to Paper."

Henry Fowler, vice president and general manager of Nicolet, said in DePere the appointments will further streamline the mill's newly expanded operation. Nicolet recently dedicated a new $3-million addition which will make the mill one of the largest producers of glassine paper in the country.

Sutphen Joins U. S. Envelope

Harold A. Sutphen, formerly assistant manager, commercial, for the Luke, Md., mill, fine papers division, West Virginia Pulp & Paper Co., has been elected vice president and treasurer and a member of the executive committee of United States Envelope Co., Springfield, Mass.

Darcey and Innes Promoted at Demopolis

Cy Darcey, formerly a paper tour foreman at Gulf States' Tuscaloosa mill, has been named board mill superintendent at Demopolis. A. C. Innes has been transferred from Tuscaloosa to Demopolis and promoted to board mill tour foreman.

J. P. Lewis Announces Staff Changes

The J. P. Lewis Co., Beaver Falls, N. Y. has announced promotions and additions to its staff.

J. Edmund Becker has become mill manager.

Mr. Becker, who came to the company in September, 1954, as production manager, will directly supervise all papermaking, production and engineering at both the Beaver Falls mill and the Brownville board mill of the company. He was formerly with Alton Box Board Co., Alton, Ill., and Chase Bag Co., Chagrin Falls, Ohio. He is a graduate of the New York State College of Forestry at Syracuse university.

Lawrence C. Byrnes, Copenhagen, who joined the company in 1957 and was formerly engaged in sales liaison, has been promoted to assistant to the general manager, E. S. Nuspliger. Mr. Byrnes is a native of Copenhagen and attended schools these before graduating from Cortland State University College of Education.

Robert McPheters has joined the company as technical director. Mr. McPheters was employed as a research manager at the Fiber Products Research Center, Inc., Beaver Falls. He has had extensive experience in the technical aspects of papermaking and research. He is a graduate of the University of Maine.

R. W. Selmser, Watertown, and Royce Fralick, Brownville, continue as resident manager and assistant resident manager and plant engineer, respectively, at the Brownville board mill.

A.N.D. Industrial Relations Appointments

The following appointments in the Industrial Relations Department of the Anglo-Nfld. Development Co., Ltd., Grand Falls, Newfoundland, were recently announced.

J. D. Hennessey has been made assistant manager of Industrial Relations.

N. W. Pinsent is personnel superintendent, covering mill and botwood operations.

W. W. Hickman becomes personnel superintendent, logging operations.

R. E. Williams

KVP Sutherland Appoints Process Engineer

Richard E. Williams has been appointed process engineer with the Technical Department of the KVP Div'sion, KVP Sutherland Paper Co., Kalamazoo, Mich.

Mr. Williams graduated this summer from the New York State University College of Forestry at Syracuse University, Syracuse, N. Y., with a B.S. degree in pulp and paper technology.

M. S. DIMITRI has won a $200 award for the third time in an annual essay contest sponsored by the John W. Bolton Co., manufacturer of paper mill machinery, and the American Pulp and Paper Mill Superintendents Assn. Mr. Dimitri, a research chemist at West Virginia Pulp and Paper Co.'s Charleston Research Laboratory, one of 1100 contestants, is the first to have won this award three times. Pictured at the presentation ceremony are (l. to r.) R. L. Bentley, manager, of Westvaco's Kraft Division; John G. Bolton, president, John W. Bolton Co.; Mr. Dimitri; Dr. F. J. Ball, director of Westvaco's Charleston Research Laboratory; and J. T. Walker, Westvaco vice president in charge of research and engineering.

Skowbo Leaves Brown To Join Champion

Stuart W. Skowbo, senior vice president, treasurer and a director of Brown Co., Berlin, N. H., resigned from the firm August 1 to become assistant to the president of the Champion Paper and Fibre Co., Hamilton, Ohio.

Leonard A. Pierce, Jr., president of Brown Co., said Mr. Skowbo's resignation was accepted by the board of directors "with deep regret." He had been with Brown since 1954, first as vice president and treasurer. He was elected a director in 1957.

Mr. Skowbo held various financial positions with General Electric Co. at Schenectady, N. Y., and Lynn, Mass., from 1943 to 1948. In 1948, he joined the Coolerator Co. Duluth, Minn., as comptroller, rising to executive vice president and director. In 1954 he joined Brown Co.

Hugh D. Jordan of Shelburne, N. H., was elected treasurer of the company by the board of directors to fill the vacancy caused by Mr. Skowbo's resignation.

Mr. Jordan joined Brown in February 1955 as manager of costs, and was elected assistant treasurer in April 1956. He was made general manager of Brown's Sulphite Pulp Division in September 1959.

A graduate of Cornell University, Mr. Jordan has had extensive experience in the pulp and paper field.

Glotzbach Joins Mead At Dayton Head Office

P. C. Glotzbach has been appointed internal audit manager for The Mead Corp.

Mr. Glotzbach, who will be located at Mead's head office, comes to Dayton from Chicago, where he was employed as director of methods research for Montgomery Ward and Co. He is a Business Administration graduate of Rockhurst College, Kansas City, Mo.

Mando Promotes Cooper to General Traffic Manager

Promotion of C. D. Cooper to general traffic manager for Minnesota and Ontario Paper Co. has been announced. Effective September 1, Mr. Cooper will succeed F. E. Hufford, who is retiring.

A member of the company's traffic staff since 1929, Mr. Cooper has been assistant general traffic manager since 1945. Born at Amboy, Minn., he was educated in Minneapolis and served in World War I.

Franklin E. Hufford, who retires August 31, has been Mando's general traffic manager since 1945. Native of Altoona, Pa., he began his career in traffic with the Pennsylvania Railroad 47 years ago. He served in the army in World War I and in the second conflict was a traffic specialist for the War Production board.

Feller Resigns Erving Paper Post

Donald W. Feller has resigned as vice president of sales for Erving Paper Mills, Erving, Mass., terminating a ten year affiliation.

Mr. Feller plans to start his own business in the paper and advertising specialty field.

V. F. Mattson

Great Northern Announces Staff Changes

Great Northern Paper Co. has appointed Victor F. Mattson to the newly created position of research director. Dr. Mattson will be in charge of research projects in the area of pulp and paper research and development. His past experience includes group leader in technical coated specialties at Oxford Paper Co. at Rumford, Me., and in coating research at Mead Corp., in Chillicothe, Ohio.

Dr. Mattson holds a B.S. degree in chemistry from Union College, and M.S. and Ph.D. degrees from the Institute of Paper Chemistry.

Warren Richardson has joined Great Northern as junior project engineer with the Research and Development Department. Mr. Richardson graduated in June of this year from the State College of Forestry, Syracuse University, with a B.S. degree and a major in Pulp and Paper.

Fraser Paper Announces N.Y. Sales Office Changes

Fraser Paper, Ltd., has announced the following appointments in its New York sales office.

Charles J. Rise has been designated assistant general sales manager, coordinating sales and administrative responsibilities under the direction of Logan W. Miller, general sales manager. Mr. Rice has had extensive experience with Fraser Paper, Ltd., having served in the technical, production and sales departments. Prior to this assignment, Mr. Rice held the position of Eastern sales manager.

Jack K. Barry has been appointed Western sales manager with responsibilities for all sales activities within the jurisdiction of the Chicago sales division. Mr. Barry's 22 years of service with Fraser Paper includes extensive experience in the technical and service departments and sales assignments in both the New York and Chicago sales divisions. Prior to this assignment, Mr. Barry held the position of manager of merchant sales.

Andrew F. Dolan has been assigned to sales responsibilities in the Eastern division. Mr. Dolan has had extensive responsibilities in the customer service department and has been responsible for advertising and sales promotion.

John E. Higgins has been appointed customer service manager succeeding Mr. Dolan. Mr. Higgins has been responsible for mill scheduling, and has had extensive administrative experience.

Gannett To Leave U. of Maine Post

James A. Gannett, resident secretary of the University of Maine Pulp and Paper Foundation, will retire at the end of this month from the position which he has held for the past seven years.

Mr. Gannett, a native of Yarmouth, was graduated from the University in 1908 with a B.S. degree in electrical engineering.

In February of this year he received the Pulp and Paper Foundation's Annual Honor Award in recognition of his service to the organization.

Succeeding Mr. Gannett as resident secretary of the Foundation will be Charles E. Crossland, who will also continue as the State University's vice president for administration.

He has been associated with the university since his graduation in 1917. For eight years, from 1928-36, he was executive secretary of the General Alumni Association, and during World War II served as the university's business manager. Since then he has been director of student and public relations, assistant to the president, and since 1958 vice president for administration.

Bensley Joins American Writing Paper

Clarence A. Bensley has joined the engineering department of American Writing Paper Co. as superintendent of maintenance. In this capacity, Mr. Bensley will be in charge of maintenance for the company's six mills in Holyoke, Mass.

J. A. Ardini

Tileston & Hollingsworth Names V.P.-Manufacturing

Amor Hollingsworth, president of Tileston & Hollingsworth Co., papermaker in Boston, announces the election of John A. Ardini as vice president in charge of manufacturing.

Culbertson Is Named Bowaters Mill Head

Lowell Culbertson, acting mill manager of Bowaters Southern Paper Corp., has been promoted to mill manager. Mr. Culbertson, who is also a member of the mill management committee, joined the Bowaters Southern engineering department as an engineer in May 1954, shortly before the mill went into production.

In January 1956, Mr. Culbertson became chief draftsman, and in January 1957, he was promoted to resident engineer. On January 1, 1960, he was named acting mill manager.

He worked in the engineering division of Union Bag-Camp Paper Corp., Savannah, Ga., before joining Bowaters Southern.

Columbia Appoints Myers General Superintendent

Columbia Box Board Mills, Inc., Chatham, N. Y., has announced the following appointments.

Francis M. Myers is to be general superintendent in full charge of all Chatham operations including the

Fleet and Converting Divisions.

George Gorman becomes assistant superintendent in charge of the Production Department.

John Fila is assistant superintendent in charge of converting and material handling.

Park Named Supervisor On Champion Planning Staff

Promotion of Donald Park, to supervisor of the Management Studies Section of the Management Planning Staff at the Champion Paper and Fibre Co., of Hamilton, Ohio, has been announced.

In this new assignment, Mr. Park will coordinate the planning and justification of capital expenditures and will supervise the management surveys performed by his section.

OBITUARIES

Harold J. Buttery, 57, of Kalamazoo, Mich., former Milwood school board member and Sutherland Paper Co. maintenance superintendent for 25 years, died July 24 at Bornson Hospital after a lingering illness. He retired from Sutherland in 1959 and for the past year was a part-time consulting engineer for the R. E. Gove Co., of Kalamazoo.

John George Fleming, Sr., 58, chairman of the board and executive vice-president of Fleming and Sons, Inc., Dallas, Tex., paper company, died July 22 in his home after a long illness.

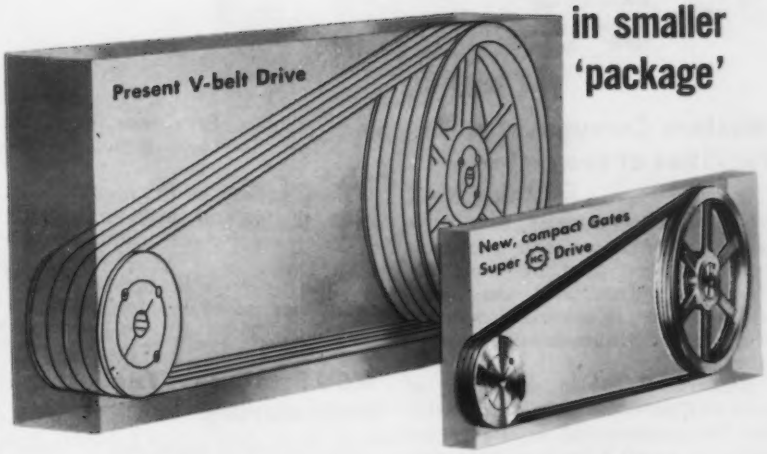
Robert Lindsay Moore, 73, vice president and treasurer of the Queen City Paper Co., died July 21 in Christ Hospital, Cincinnati, Ohio.

Mr. Moore, who was associated with the paper company for 51 years, had planned to retire within a few months.

Raymond A. Steffen, 68, died July 22 in Fort Hamilton Hospital, Hamilton, Ohio.

During Mr. Steffen's 41 years with Champion Paper and Fibre Co., he was connected with the research department for 26 years, serving the last five years as research consultant. He was the first safety director; the first waste control manager with the firm, and the first manager of the standards department at Champion.

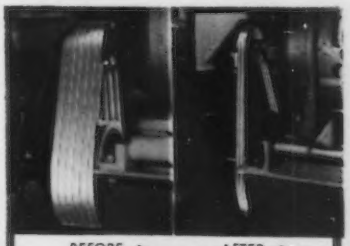
Same HP capacity in smaller 'package'



Industry cuts drive costs as much as 20% with Gates high capacity V-Belts

By putting power transmission in a smaller package, Gates 'performance-proved' Super HC V-Belt Drive has cut costs all along the line—for all kinds of industries—since its introduction more than a year ago.

As a replacement drive on equipment *inside* the plant, or as the drive on equipment *manufactured for sale*, the Super HC Drive has enabled thousands of industrial users and OEM's to reduce sheave diameters 30% to 50%, overall drive space up to 50%, and drive weight 20% and more. *Initial drive cost has been cut as much as 20%.*



BEFORE ◄ AFTER ◄

COMPARE: Conventional drive at left was replaced with Gates new Super HC V-Belt Drive at right. Three of Gates new, narrow HC V-Belts do the work of the former 6 standard width belts. In this application the new drive actually takes *one-third* the space of old!

Nation-Wide Engineering Service

A Gates Distributor can show you how to effect savings with Super HC V-Belt Drives. Ask him for your free copy of *"The Modern Way to Design Multiple V-Belt Drives,"* or write to The Gates Rubber Company Sales Division, Inc., Denver, Colorado.

The Gates Rubber Company, Denver, Colorado TPA-535A
Gates Rubber of Canada Ltd., Brantford, Ontario

Gates *World's Largest Maker of V-Belts*

Gates Super HC V-Belt Drives
HIGH CAPACITY

PJT NEWS OF CONVERTERS

Western Corrugated Adds Facilities at Beaverton

Western Corrugated of Beaverton, Ore., manufacturer of corrugated shipping containers and packaging materials now used by some 350 Northwest agricultural and industrial concerns, is nearing completion of a quarter million-dollar expansion program.

Richard B. Keller, manager of sales and production, said expansion has been stimulated by increasing customer demand for packaging materials.

Western's Beaverton plant, with a capacity of 50,000 square feet, was constructed in 1956 on Southern Pacific's 300-acre industrial tract on the east edge of Beaverton. Its expansion project, begun in January, has added 20,000 square feet of floor space for new converting machinery which will boost daily production on a two-shift basis to 350,000 containers.

"Increased precision and speed in manufacture gives us a 30 per cent increase in production capacity, improved fabrication quality, reduced waste and more warehouse space for large run orders," Mr. Keller said. "We also enlarged our shipping and delivery terminal to enable our fleet of trucks more efficiently to serve our Oregon and Washington customers."

The Beaverton plant, a converting division of Western Kraft Corp., pulp and paper manufacturers in Albany, Ore., employs about 100 persons.

Dennison Announces Expansion Plans

Dana C. Huntington, president of Dennison Manufacturing Co., Framingham, Mass., announced recently that the board of directors has voted to construct a new manufacturing building in Framingham.

The new two-story building will provide space for expansion of present Framingham product division, for new products, and for the necessary servicing divisions.

Designed for manufacturing on both floors, the new building will add 62,000 square feet to the plant. The outside of the building will blend attractively with surrounding Dennison buildings. Provisions for future expansion have been included in the plans.

Stone & Webster has been engaged for architectural and engineering services and for construction supervision.

Construction will start soon with completion scheduled for the early spring of 1961.

MSU Establishes Packaging Professorship

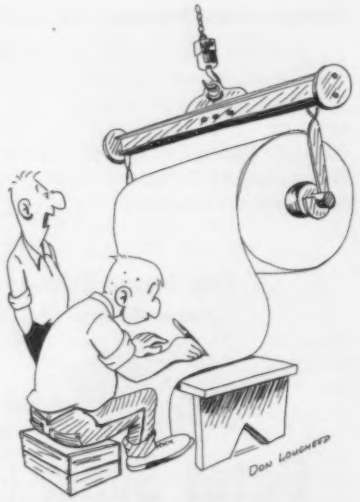
The School of Packaging at Michigan State University, announces the promotion, on August 1, of Dr. James W. Goff to the rank of professor.

This event marks the establishment of the first full professorship in the packaging field and signifies the importance of the packaging program in the overall plans of the University.

Ludlow Papers Chooses Purchasing Manager

Ludlow Papers, a division of Ludlow Corp., Needham Heights, Mass., has appointed Douglas E. Donovan manager of purchasing. He will be located in the home office at Needham. Prior to joining Ludlow, Mr. Donovan was president of Specialty Converters, Inc., of Weymouth, Mass.

Ludlow Papers converts a broad line of gummed and coated fine papers, specialty papers, sealing tapes, corrugators tapes, reinforced and creped protective packaging papers. Its mills are located at Ware, Mass., Framingham, Mass., and Netcong, N. J.



"Planning a lengthy letter, Figerty?"

Gary to Manage Con. Can Texas Box Plant

Joseph W. Gary has been named manager of the Continental Can Co. corrugated box plant in Tyler, Tex., R. Groner, Jr., Southern District general manager of the firm's Fibre Drum and Corrugated Box Division has announced. Mr. Gary has been with the company and the pre-merger Robert Gair Co. for nine years and has been superintendent at Tyler since the plant began operation in 1958.

Edgar O. Olsen, Jr., has been appointed corrugated box district sales manager in Tyler. For the past eight years, he has been a corrugated box salesman working out of the firm's New Orleans office.

Simplex Box Name Changed

The name of the Simplex Paper Box Corp. is being changed to Downingtown Paper Co. Packaging Division, Lancaster plant, it was announced by F. Huston McIlvain, Downingtown Paper Co. president.

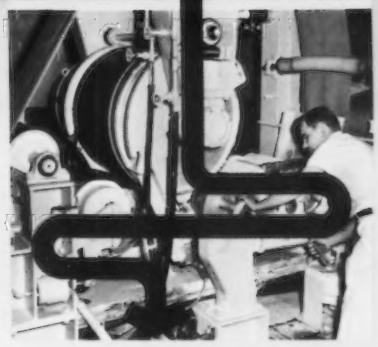
Simplex has been a wholly owned subsidiary of the Downingtown firm for several years. This and Downingtown Paper Box Co., which was also a wholly owned subsidiary, have been merged with the paper firm. The change was effected to serve customers' needs more readily, and to improve internal communications and operations, Mr. McIlvain said.

The company joined all its packaging division sales organizations into one organization last December.

General Gummed Products Names N.Y. Sales Rep.

General Gummed Products, Inc., Linden, N. J., has appointed Jerry Klein as special New York Metropolitan area sales representative.

Mr. Klein was formerly associated with Hinde & Dauch Division of West Virginia Pulp and Paper Co., and is thoroughly familiar with the paper distributing field. He will furnish special customer service to the paper merchant and corrugated container accounts in the Metropolitan area for General Gummed Products, Inc.



coating improved by Double-Wet* application

Beloit Research
dedicated to paper progress

Whether by roll application, air knife, or various trailing blade arrangements, Beloit's laboratory coating unit "proves its point" before a commercial installation is made. This type of coating research . . . in the area of advanced coating design . . . provides an essential saving in today's highly competitive coated paper and board markets. Beloit research engineers daily meet the demand for improved coating applications on grades ranging from the lightest sheet to the heaviest board grades—coating at speeds in the 3000 fpm range. Beloit "paperesearch" means *paper progress*—more efficient machines, always better paper.

AIR KNIFE FOLLOWING TRAILING-BLADE WITHOUT INTERMEDIATE DRYING

*PAT. APPLIED FOR

PHOTOS BY S. R. CHRISTENSEN

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BELOIT
PAPER MACHINERY

your partner in papermaking

Beloit
machines
hold
speed
and
production
records
on tissue,
newsprint,
publication
grades,
kraft,
and
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Dryden=

Quality and Service

Papermakers know that Dryden is synonomous with quality. But Dryden is also known for complete and efficient service.

Dryden maintains boxcar inventories of sulphate pulps—ready to go at a moment's notice…Cars are constantly on the move all over the country and, in an emergency, can be rapidly diverted…Delivery can be made to any destination in the East in a maximum of ten days, and much more quickly in the Midwest – due to Dryden's strategic location on the CPR east-west trunk line.

Dryden also offers a special service to those who use more than one grade of Dryden pulp: mixed cars with two or more grades help keep your inventories at a minimum.

And, of course, technical information and service are always available whenever the need arises. Order a trial shipment of Dryden Sulphate Pulp—and get the extra bonus of quality and service.

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SALES REPRESENTATIVE IN THE UNITED STATES:
Northeastern Paper Sales, Inc.
400 Madison Avenue, New York 17, N.Y.

New Design of ClO_2 Bleach Tower Cuts Costs at Potlatch

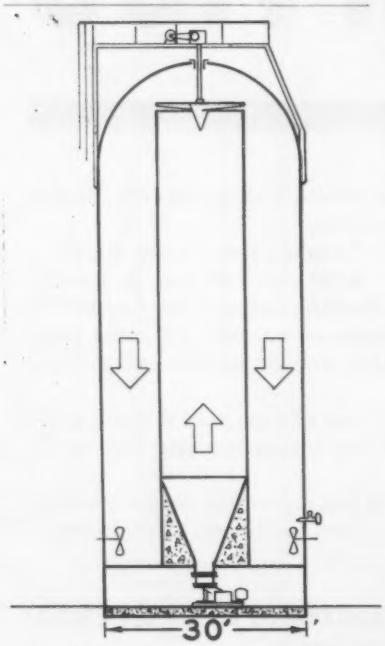
Installed in November 1959, this new ClO_2 tower has achieved for Potlatch its objectives of reduced chemical costs, elimination of color reversion and brightnesses of 86 to 88 G.E.

Paul D. Van Derveer,
Associate Editor,
Paper Trade Journal

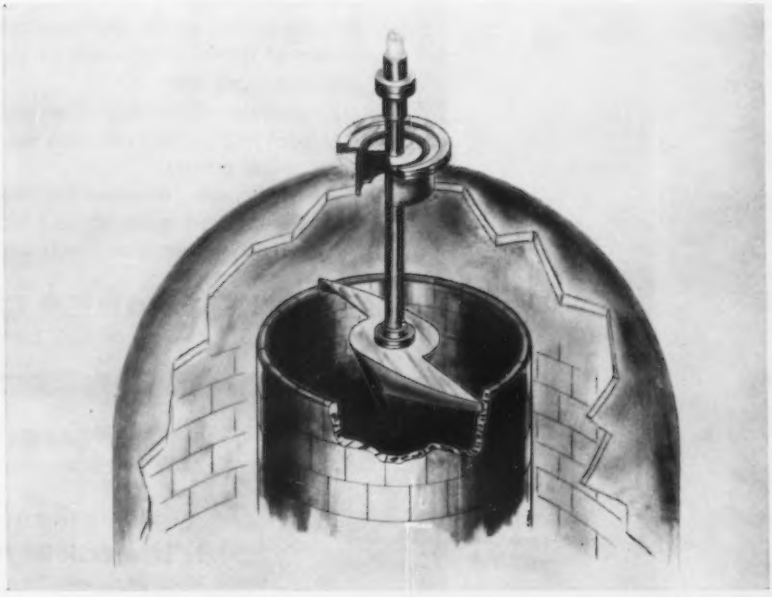
In operation since November 1959, a new design of chlorine dioxide bleach tower at the Potlatch Forests Industries mill in Lewiston, Idaho, has proven highly successful. Reputedly the largest single chlorine dioxide stage in the world, the new concentric design tower handles 700 tons of pulp per day, bleaching it to high brightnesses for use in the manufacture of various food board grades.

The company has two fourdriniers, both of about 200 inches trim, producing paperboard ranging from seven to 28 points in caliper and basis weights from 91 lbs. to 360 lbs. (24 x 36-3000). Pulp for the company's Pomona plant as well as some market pulp is also produced here. The pulp paperboard mill at Lewiston adjoins Potlatch-owned lumber and veneer mills and utilizes wood residue from these operations in the production of pulp. The company practices 100 per cent wood utilization, using even the shavings and sawdust in a continuous pulping operation. The resulting pulp is said to be beneficial to the quality of board and is mixed with their conventional kraft pulp prior to bleaching.

Developed by Dorr-Oliver, the new chlorine dioxide tower was installed to answer Potlacth's requirements for pulp of high brightness and brightness stability. The existing bleach tower had been operating far beyond its designed capacity so that effective retention time had been reduced to 1½ hours with the consequence that chemical usage and costs were excessive. After intensive study of their requirements, Potlatch had found that a tower of conventional design would be very costly and would exceed 100 feet in height, requiring the payment of steeplejack wages for final erection (using labor from the state of Washington).

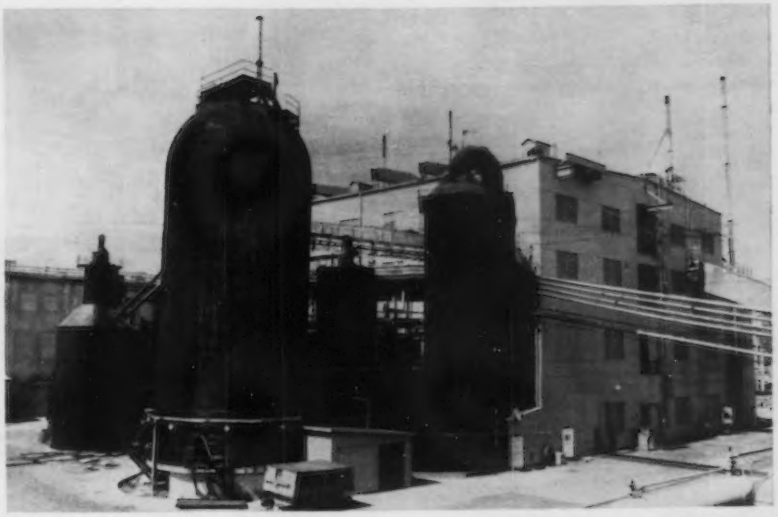


▲ Concentric tower design at Potlatch handles 700 tons of pulp per day, is said to be world's largest single ClO_2 stage.



Plumb-bob type distributor scrapes ▶ pulp, at density of about 12 per cent, off top of inner tower into outer concentric tower.

Erection would also have been difficult because the top of the tower could not be reached by means of the yard crane. Other considerations such as foundation requirements and compressive stresses on the tile lining were of concern, too. Further study of the situation disclosed that the new concentric tower design which had been under development for some time by Dorr-Oliver would solve these special problems and the decision was reached to install this type of tower.



New ClO_2 tower contrasts in size with old tower at front corner of bleach plant building. New tower is 78 feet high. Conventional tower of equal capacity would have height of about 130 feet.

Several Advantages

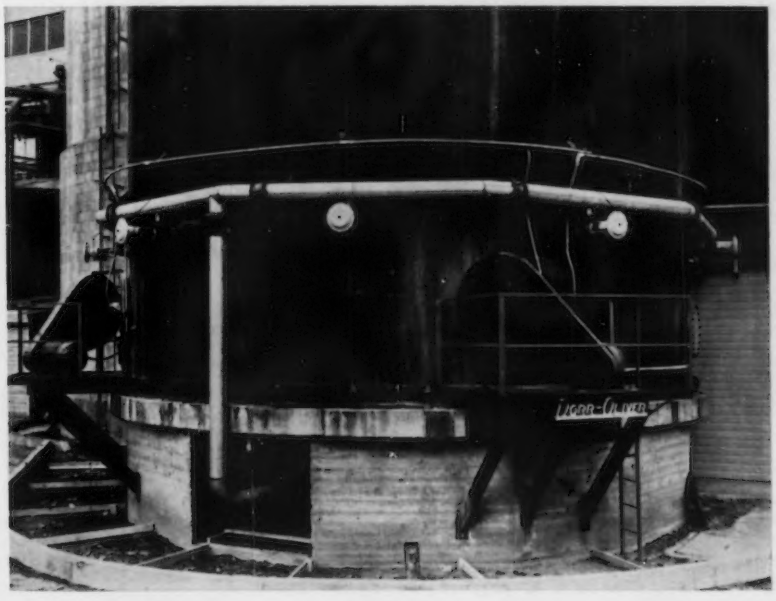
The new bleach tower is of concentric design with an inner upflow tower and an outer annular shell forming a downflow tower. It is utilized for Potlatch Forests' fifth (chlorine dioxide) bleaching stage and is said to have several advantages over towers of conventional design. One of these, and perhaps the most important, is the safety factor it provides in case of emergency shutdown of a part of the bleach plant. For instance, in case the ClO_2 washer must be shut down, the stock in the downflow portion of the tower may be drawn down to a low level; and then while the washer is being repaired, the bleached pulp can be held in the downflow portion of the tower until the stock level reaches a maximum. This provides additional storage capacity for several hours and is particularly important here because of a rather limited storage capacity. Other advantages of this tower include the fact that retention time may be fully controlled, chlorine dioxide losses reduced, and that minimum space is required while heat loss and power requirements are minimized.

Five Stage System

Potlatch's five stage bleach system consists of chlorine, caustic, first hypochlorite, second hypochlorite and chlorine dioxide. Used primarily in the manufacture of food board grades, the pulp is commonly produced with brightness of 86 to 88. The system is capable of going to higher brightnesses should future market conditions demand it. Bleaching prior to the chlorine dioxide stage is done in two separate lines, lending a certain amount of flexibility to the system. Following the second hypo stage, pulp from both lines goes to the new chlorine dioxide tower for the fifth stage treatment and then, after the required retention time, is pumped to a rotary drum washer from which the pulp is screw conveyed to a 100 ton high density storage tank.

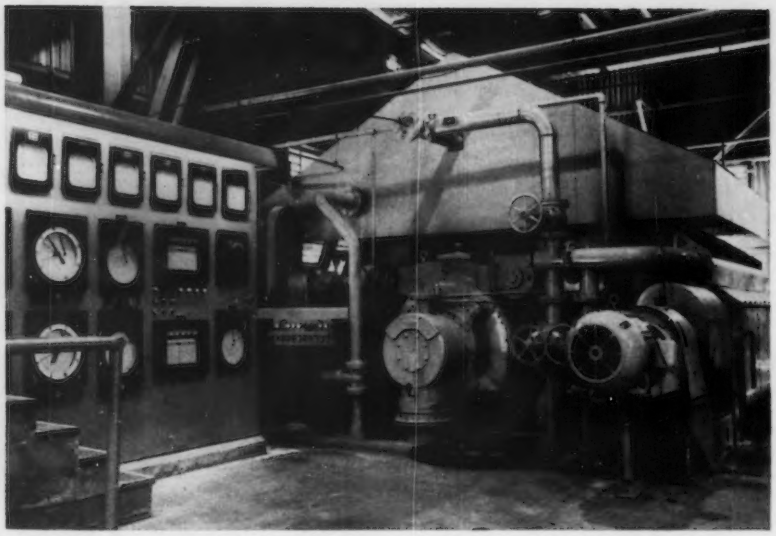
Operation

In the Potlatch bleaching system, belt conveyors carry pulp of approximately 12 per cent consistency and 76 brightness from the second hypo stage to the chlorine dioxide bleaching operation which begins with a double shaft heat mixer where stock temperature is raised to 160°-170°F. From this point, the stock drops to the intake of a thick stock pump which provides sufficient pressure to elevate stock to the required height in the center upflow tower. The stock flows next to a vertical, double shaft mixer (prior to which chlorine dioxide bleach liquor at a concentration of 10.0 to 10.25 grams per liter is added) and then to the bleach tower. A dilute caustic solution is added to control pH of the stock to 3 5 before entry into the tower. The heat mixer, thick stock pump and vertical mixer were manufactured by Improved Machinery Co., and had

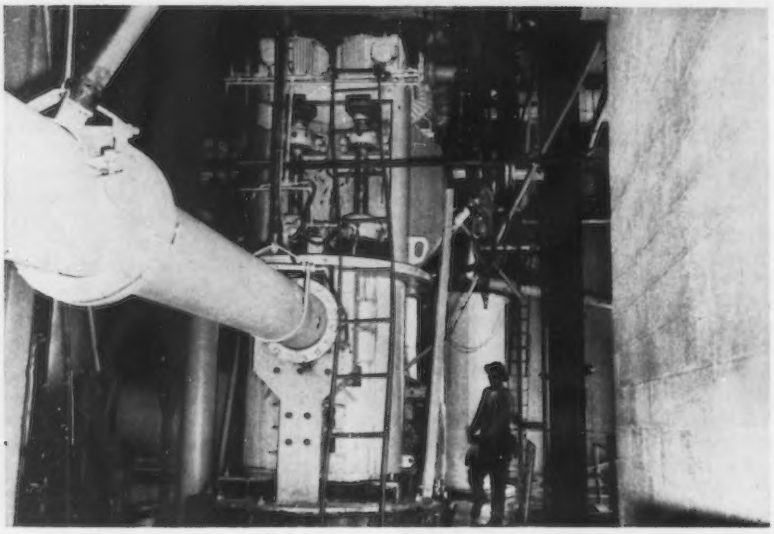


◀ Location and arrangement of dilution-neutralization nozzles and circulators is shown in this view of base of tower.

New rotary washer follows fifth stage ClO_2 treatment. Stock leaving washer is transported by screw conveyor to high density storage. Instrument panel for system is at left.



Vertical double shaft mixer prior to which ClO_2 in required concentration is introduced.



been utilized in the old system.

The pulp enters the tower at the bottom through a conical inlet section and then moves upward through the center tower, 13 feet in diameter by 65 feet high, providing one hour retention time at a 700 ton per day rate. The pulp, at a density of about 12 per cent, is scraped off the top of this inner tower by an unusual distributing impeller with two swept back arms and a center cone. This device uniformly distributes the pulp into the annular space formed between the walls of the inner and outer towers. Handling 700 tons per day, the distributor turns at 16 r.p.m. with less than 10 h.p. on the drive.

The outer tower, with an inside diameter of 30 feet, has four tangential circulators and ten dilution nozzles located near the bottom of the tower. It provides four hours retention time for the pulp before reaching the dilution zone. A short retention time is also provided in this zone to allow thorough mixing of neutralizing caustic which is added with the dilution water and prevents corrosion of the rotary washer.

Construction

Overall height of the chlorine dioxide bleach tower is 78 feet. The 13 foot diameter inner tower is constructed of steel plate lined with tile on the inside and sheathed with tile on the outside. The outer tower, 30 feet in diameter, is also constructed of steel plate with tile lining. All steel contact surfaces were covered with a film of Latex-Lumnite and quartz flour mixture, sprayed with Sarancote and walled with 2½ inch acid resistant brick using polyester cement. Insert nozzles, scraper, and circulator shafts are constructed of Hastelloy C while dilution nozzles and circulator blades are of 317 ELC stainless steel; all gaskets are Teflon.

The chlorine dioxide bleach system is instrumented for: flow control of bleach liquor; temperature control in the heat mixer; level control in the bleach tower; pH control of pulp going into the washer; temperature recording at ten different levels in the bleach tower; ammeter indication on circulator motors and scraper arm motor.

Costs Reduced

The chlorine dioxide bleaching system, installed in 1952 and one of the first in this country includes a Solvay ClO_2 generating plant. Consumption of chlorine dioxide, which had been a problem prior to installation of the new bleach tower, now averages about 0.6 per cent or 12 pounds per ton of pulp at a cost of about $2.06 per ton.

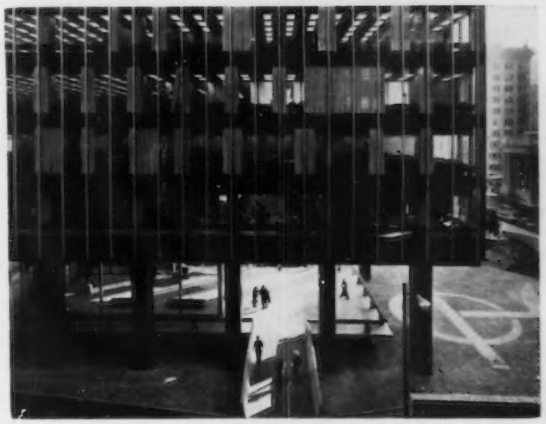
Potlatch has had good results with the new chlorine dioxide tower and has achieved the original objectives: color reversion has been substantially eliminated; bleach chemical cost has been reduced by nearly 350 dollars per day; and brightnesses of 86 to 88 G.E. have already been attained. Other important features of the tower noted by Potlatch personnel are: the center tower eliminates the possibility of the plug of stock turning over, assuring uniform discharge; there is no heat loss from the inner tower; and the top of the tower can readily be reached by the yard crane.

Ultra-Modern Skyscraper New Headquarters For Crown Zellerbach

New 20-story building features glass and aluminum exterior curtain wall and interior entirely free of columns. Solid faced tower is a service core containing elevators, air conditioning, washrooms, fire escapes, etc.

The pulp and paper industry's second largest company, Crown Zellerbach Corp., this year formally dedicated a new headquarters building in the heart of San Francisco's financial district. The only company in our industry owning a skyscraper, CZ can also claim the distinction of having the first major example of glass curtain-wall office building construction in downtown San Francisco.

Highly distinctive in appearance, the building is 20 stories high with an exterior of glass, aluminum and mosaic tile and with an interior completely free of columns or other obstructions. Containing approximately 255,000 square feet of office space, the building features modular construction with every floor divided into units of 5½ feet by 5½ feet, each unit is supplied with electric and telephone outlets plus its own light and air conditioning. The entire load of the rectangular office tower is concentrated on 18 steel columns which ascend the height of the building. Located on a wedge shaped site of approximately 1-1/3 acres, the building occupies one third of the land area; the rest is a landscaped plaza. Beneath the building is a two level garage capable of accommodating 150 cars.



Tiled bridge leads from street to broad deck surrounding lobby. The building contains 2⅔ acres of glass.

Executive office on a top floor. Building features modular construction, each unit being supplied with electric and telephone outlets, its own light and air conditioning.

Garden-plaza surrounds the building. Unusual bronze fountain is one of several art works adorning the modern structure.

Developments in Headbox Designs For High Speeds

H. A. Brewden and B. Locking

Conventional rectangular headboxes are shown and described in (4) and Figure 17A is a reproduction of Figure 3A of that paper. This box may be considered as one of the connecting links between the older review and the present one. When the flow rate in the box is low or the stock is long fibered, the general characteristics of flow are unable to prevent flocculation, and as described earlier, attempts to run at a lower liquid level, have not proved satisfactory as the defects in the manifold system then show at the slice. For this reason, modifications of the box have recently appeared for grades other than high speed newsprint on which the box has proved satisfactory.

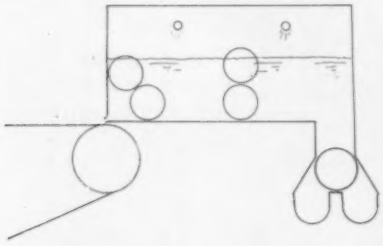


Figure 17A: Conventional rectangular air loaded box with cross flow distributor.

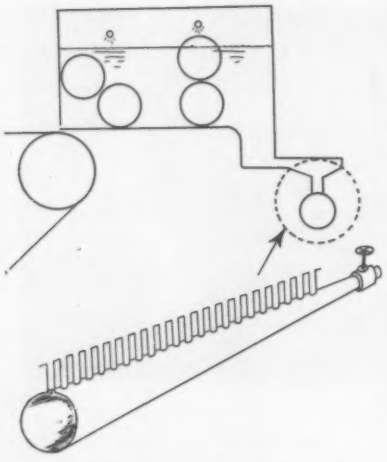


Figure 17B: Shortened type of conventional air loaded box fitted with a taper flow distribution system.

Such a modified box is shown in Figure 17B. In this figure a variety of the one-sided taper flow type inlet, as described previously, is shown. This type of inlet now appears to be the preferred form. In an actual design for a 150 inch machine about forty 1¾ inch diameter pipes would be used, evenly spaced.

Shortened boxes with only two rolls are now being built for certain grades, these are a shortened version of Figure 18B with the center roll omitted and are used for heavily loaded grades where high flow speed through the box is needed. These are only practical with the newer distribution systems such as the taper flow type.

Figure 18A shows another type of air loaded box: in this the rectangular shape has been dispensed with and the level is only slightly lower than in the more conventional design because of the large diameter perforated roll at the slice.

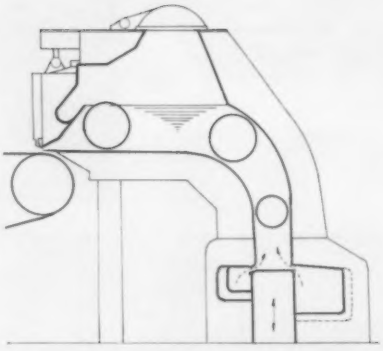


Figure 18A: Type of conventional air loaded box with Parge perforated roll.

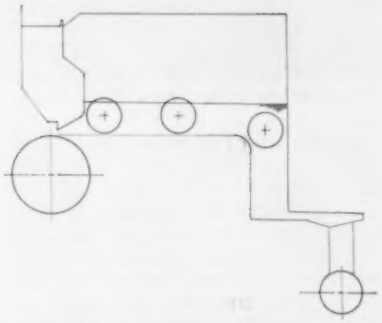


Figure 18B: Variation of conventional air loaded box with low level for kraft.

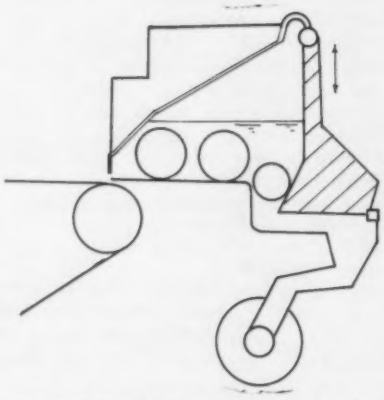


Figure 18C: Design of air loaded box with one sided inlet, low level short flow path and quick opening top.

The conventional rectangular air loaded boxes when fitted with cross flow distributor or explosion chamber type inlets must be run at fairly high stock levels in order that the deficiencies of the distribution system do not appear at the slice, for

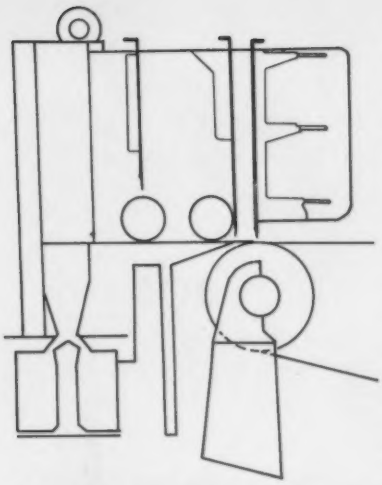


Figure 19: Example of subsidiary slice in conventional air loaded box.

example when running kraft stock. For certain long fibered stocks such as softwood kraft this results in a badly flocculated sheet due to the low flow speeds. In an attempt to overcome this disadvantage designs such as that of Figure 18B have been built. In these the low level of stock is possible because of the improved distribution system, though this system has itself potential disadvantages due to the critical nature of the design of the explosion chamber. In one type the width of the slot leading from the explosion chamber is variable as shown in the figure. Figure 18C shows the latest design of air loaded box to appear with the one-sided inlet, low level, short flow path, and quick opening top for ease of cleaning.

Reference (18) has given a good description of the flow inside rectangular air loaded boxes fitted with different distributor types. While some of the points made have been discussed in the section on manifolds, the original should be consulted because of the considerable amount of experimental data it contains.

In (25) Lee and Johnson state that the ratio of the average depth of the stream within the headbox to the slice opening should be as small as possible and in any event should not exceed a ratio of 25. As an example this means that for a slice opening of 7/16 inch the depth of the stock should not exceed 11 inches. If this ratio is maintained, the fine grain turbulence is not lost. These remarks illustrate how important is the correct distribution system to enable a low depth to be used and the correct contraction ratio obtained.

It is quite amazing, in published remarks on boxes of this type, how often it is stated that the pressure is obtained by air instead of the height of the stock pond, whereas, of course, the pressure is obtained from the fan pump, the air cushion serving only as a "counter spring". The main function of the air cushion besides the avoidance of the necessity for a high stock level and consequent design difficulties, is to act as a surge tank, a fact brought into focus for the first time by (7). However, it now seems that satisfactory surge tank and piping design in combination have made it possible to obtain the same amount of surge suppression on pump boxes without air cushion.

Considering the functioning of the air cushion, we might point out that the original idea appears due to Malkin (26). The idea of the air cushion, however, proved unworkable until a satisfactory method of regulating the position of the air liquid interface was devised by Hornbostel (27). The common system consists of a hole in the side of the box with an angled pipe through it to form a hole of adjustable level. The flow through the hole is a mixture of air and water. If the liquid level rises to seal the hole, the air pressure rises until the level is pushed down so that air and liquid again pass through the hole, if the level drops to completely unseal the hole, then the air pressure falls until the hole is again partially sealed. It is important for stability that the hole size and air supply be matched; too small a hole with too much air gives instability.

Lee and Critenden (28) have produced an alternative system of level control in a headbox with air cushion which consists essentially of a tank at the side of the headbox to which it is joined by a pipe of ample proportions and the level in this tank is regulated by means of controlled air supply and syphon type over-

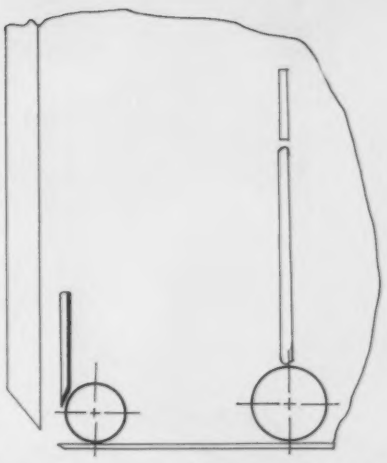


Figure 20: Older type rectangular air loaded box with vertical subsidiary slice as used on high speed kraft liner.

flow. This enables the level in the air loaded box to be regulated satisfactorily when the liquid level in the box is required to be low. (As is the case when the flow velocity through the box at high consistencies must be high enough to avoid flocculation.) Under these conditions, the level control by the hole gives very considerable instability and surging.

A description of the conventional air loaded headboxes would be incomplete without mentioning that there are several attempts recorded in the patent literature to fit subsidiary slices, of which (29) is a typical example of these. Figues 19 and 20 illustrate two examples of this design tendency. In general, it can be said that because of the whirls and uncontrolled turbulence introduced by the jets from these subsidiary slices which are expanding into an uncontrolled flow region, together with the fact that a position for eddying and lump formation has been created, designs of this type have been generally unsuccessful.

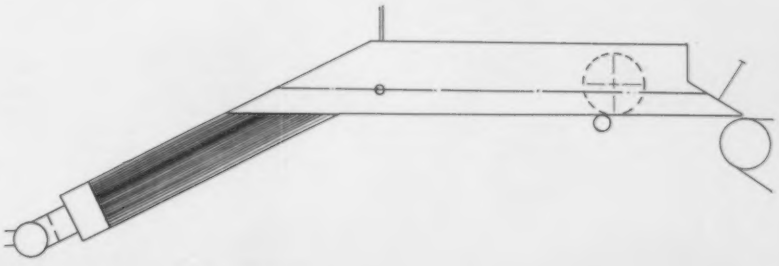


Figure 21: Frozen flow headbox.

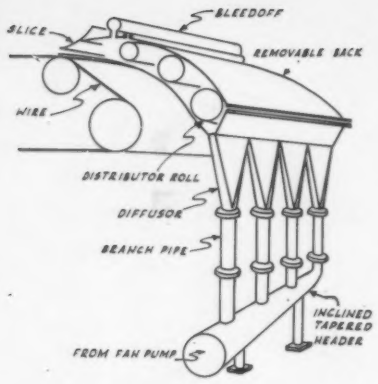


Figure 22: Pump headbox of Reitzel design.

Boxes of the type described in the above section are usually fitted with the vertical blade type slice that has certain disadvantages that are described later.

In their review (1) Mardon and Van der Meer gave a description of the "Frozen Flow box" that was not corrected until the German (4) version was published. It, therefore, seems appropriate to show here a schematic drawing, Figure 21 of this box. The Frozen Flow box, as far as is known at present, is in use only on the paper machines of the International Paper Co., and its Canadian subsidiary. This may be due to its relatively high cost and to the fact that a deaeration system is essential for its satisfactory operation. It is in use on both newsprint and kraft papers and, as far as is known, gives highly satisfactory operation.

The theory of this box is that the stock is reduced to a condition of frozen (or laminar) flow by passage through the tube nest in the inlet section and is moved through the box in this state, sufficient turbulence to give good small scale fiber distribution being put in by a special deflocculating or stove roll just before the slice. The slice is of the projection or Voith type and thus the stock is accelerated rapidly to the actual flexible slice lip.

Pump Type Pressure Boxes

A "Pump Box" is a pressure headbox that is completely filled with stock with no air-liquid interface, such as is found in both open and air cushioned boxes. The disadvantages of these designs are all connected with the fact that the stock is in contact with the upper surface and that the air in the stock tends to ride along this surface.

When the air rises to the top, it takes up with it pitch, rosin, loading and other materials. These tend to foul the surface and cause centers of lump and floc formation. While the flocs may be broken up by subsequent perforated rolls, this may not always be the case. In addition, air may collect behind the fiber that is hung up and thus cause air bubbles to carry out through the slice and on to the wire on top of the sheet.

These effects can only be prevented if a high enough velocity can be maintained at the surface; the exact critical velocity depends on the stock and aeration conditions but is for example about eight inches per second for newsprint under normal conditions.

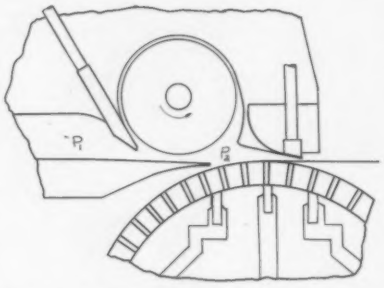


Figure 23: Tissue inlet of C. A. Lee with preliminary slice and forming roll.

The second disadvantage of pump boxes is that they have not the built in surge chamber of the air loaded boxes and thus propagate approach piping disturbances on to the wire. This disadvantage for many years stopped pump boxes being fully successful, the flutter at the dry line which the disturbance caused being one of their noteworthy characteristics. Work on surge tanks has now removed this disadvantage completely.

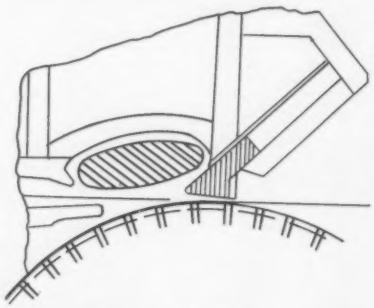


Figure 24: Tissue inlet of C. A. Lee with non-rotating forming element and bar type slice.

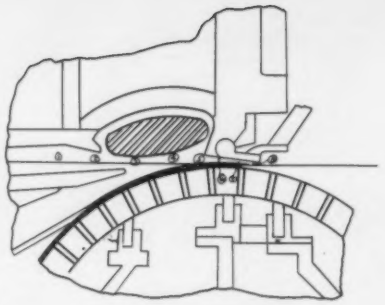


Figure 25: Tissue inlet of C. A. Lee with non-rotating forming element and hinged slice.

General Conventional Designs

Figure 22 indicates the design of Reitzel (8) which is understood to be running both on tissue and book papers. It can be seen that the headbox itself is generally similar to the flow nozzle of Voith's earlier patents e.g. Figure 11 of reference (4) but that an abrupt bend in the flow is avoided at at the same time the top of the box is horizontal until the slice is reached.

Thus, Reitzel has avoided the design of any high points where air can accumulate. This was also one of the features of the Voith design (Figure 14 of reference (4) but in Reitzel's design an air bleed has also been provided at the top to bleed off any bubbles traveling along the surface.

It is understood that the installation described suffered from both the difficulties generally described for pump boxes, that is, formation of lumps due to adherence of fiber to the upper surface and the propagation of disturbances from upstream on to the wire. The first was ameliorated by obtaining a high degree of finish on the upper surface by additional polishing and the second by work at the source of the disturbances.

The pump type box shown in Figure 16 is an interesting design combining a continuous acceleration to the slice with a "mixing chamber" in which the degree of turbulence necessary for the obtaining of a good formation was to be obtained. Unfortunately, the inherent defects of the manifold system described earlier prevented this from having an adequate trial.

Other designs similar to the pump boxes described in the original review are known to have been installed and operated successfully during the period under review. As

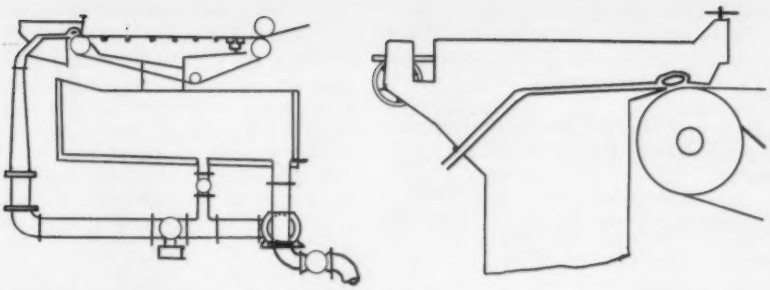


Figure 26: Piping layout for C. A. Lee type inlet.

far as is known to the authors, however, none of these differ from those discussed in (1) sufficiently to merit discussion here. Two completely new designs have, however, been described in the literature.

Headboxes of C. A. Lee

One series of these new constructions was designed for tissue machines by C. A. Lee and his associates and is described in references (30-35). The principle of the inlets is illustrated in Figures 23, 24, 25. Figure 26 shows a typical approach flow piping for the boxes as taken from Lee's patents.

The method of operation of the boxes can best be grasped with the aid of Figure 27 (from reference 33). The numbers along the pressure base refer to correspondingly numbered positions in Fig. 25. For crepe wadding it is considered that the following conditions should be obtained:

1. Slow draining at the commencement of formation, that is the pressure should be low.
2. A relatively higher pressure value at the end of forming.
3. The values of mean, maximum and minimum pressure must be controllable.

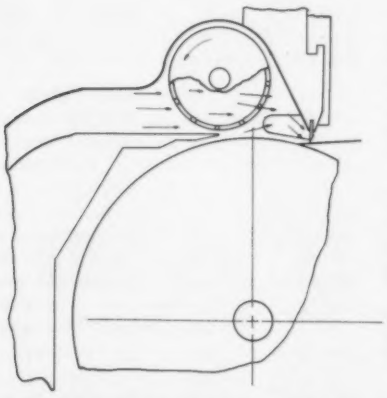


Figure 28: Lee type inlets of the type described in Reference 35.

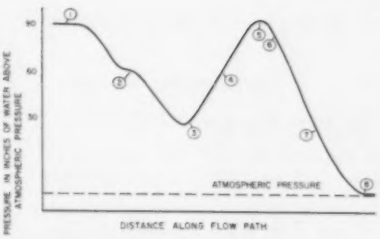


Figure 27: Pressure distribution through Lee type headbox.

4. The value of the mean pressure must be controllable independently of the velocity.
5. It must be possible to control the velocity with respect to the wire.
6. Turbulence must be controlled —this can be attained only in either accelerating or decelerating flow.

Circulation in the headbox is indicated by arrows in each case. The curve of Figure 27 indicates how these conditions are met the pressure decreasing to point "3" where formation commences and then increasing to point "5" after which there is a steady decrease the velocity being maintained at the wire speed independently of the pressure.

This principle may be illustrated also with reference to Figure 23. Here the pressures are essentially a function of the velocity. The stationary element is to maintain the stability of circulation and the orifice is adjusted by the operator to maintain the required values of the pressure at the orifice and in the dame. By adjusting the orifice, the rate of decay of the jet through it can be controlled and thus the pressure changes controlled.

It is understood that (32) and (34) represent the earlier versions of Lee's boxes and Figure 23 taken from (32) illustrates one of these. Fig. 28 shows a later version (30) related to Figure 23 and apparently similar to that described in (35). In this paper on spiral streaks (35), some of the experimental work carried out with the object of eliminating machine direction streaks caused by Taylor type vortices is described. This paper is itself rather condensed but gives an account of one phase in the development of the inlets discussed and warns against the persistence of eddies of the type that can be caused in designs with a large rotating cylinder with small clearances. Model work on the same problem is also reported by Appel (36).

Taper Flow Headboxes

This design of manifold system has already been described. In the full taper flow box, the distribution system and headbox are combined and are shown in Figure 29, with a typical piping layout in Figure 30. With this system, the stock leaves the feed roll all around the circumference and the back and front streams combine about half way down the box. The fact that there are however three streams at the feed roll, a high speed one at the top and bottom coming through the gaps between roll or box from the back of the roll and a low speed one from the front of the rolls means that the upper surface of the box is swept by a high speed stream and is kept clean. There is an air bleed provided at the high point of the box. These designs have so far only been used on newsprint but, are said to be working well in the region of 1900 f.p.m.

It will be realized that the flow is accelerating at all times and is, therefore, under control. The basic idea of the box is that once a controlled and desirable turbulence level is obtained, then this is maintained and controlled by the acceleration. Some trouble was experienced due to the small roll in the original design being located too near the slice but this has been overcome by placing a larger roll further from the slice lips.

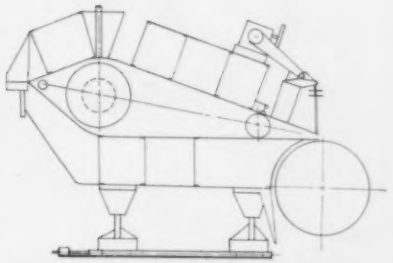


Figure 29: Full taper flow headbox.

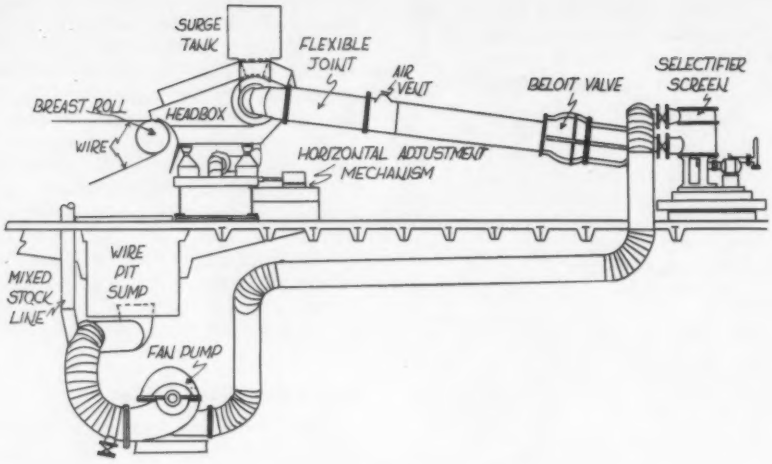


Figure 30: Typical piping arrangement for full taper flow box.

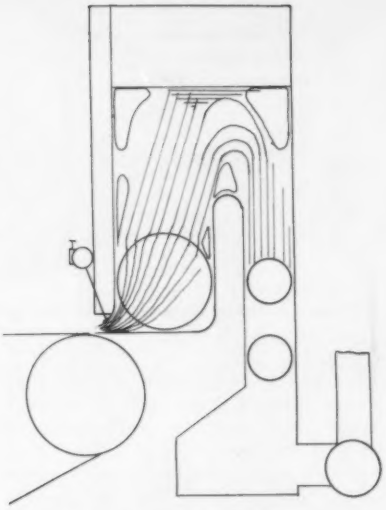


Figure 31: Typical medium speed open headbox.

Open Type of Box Design

Various designs of open box were described in the original review. Many of these are still in successful operation and more are being built and installed, of which the commonest type is that shown in Figure 31 reproduced from reference **(4)**. Boxes of this type, though serviceable, tend to have dead areas and areas where whirls and eddies occur. The flow lines shown in the figure are judged typical. The eddies can break away, and then form discontinuities in the homogeneity of the paper. Nevertheless, for medium speed service, this design appears one of the better.

Figure 32 shows a design due to Gavelin and Mardon **(13)** and this is typical of the more advanced designs of open box. It can be seen that there are almost no dead spots and the flow is accelerated right down to the slice. In the actual boxes of this type, the flow from half of each of the adjacent inlet pipes is combined by a neat system of baffles in the upsloping inlet section. The dead area at the top of a box of this type however can cause trouble with thick stock if the sprays are inadequate.

Reference **(13)** is also worth quoting because it shows the large eddies that can exist in the old type open box where there is no control of the flow; the figures in the original should be consulted for amplification of this point.

Since the development of open boxes has remained relatively static for medium speed machines and has entirely ceased for high speed machines there is little more to comment on. For low speed machines where the stock pond height is low, however, the difficulty in designing a box which can run over a reasonably wide speed range is not met with and it is in connection with low speed machines that progress in open headbox design has been found.

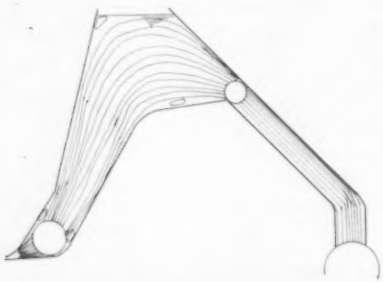


Figure 32: Semi-conventional open box.

Headboxes for Low Speed Paper Machines

The study of headbox design only really began when the more critical demands of higher speeds made obvious the very large improvements on operation that could be obtained with better design. Even then the experimentation in design was largely empirical and only in the recent past, as we have seen, has it been based on the principles of hydrodynamics and been assisted by model measurements in the fluid mechanics laboratory and hydraulic measurements in the field on the completed structures.

Because of this history of headbox development the low speed headboxes that are in use can be divided into two groups: the headboxes are either relics of the low speed headbox designs of the pre-high speed era or copies or adaptations of much older designs, or they are the results of often unsuccessful attempts to modify or change high speed designs, so that they fit the particular circumstances of lost speed operation.

Thus, in the period covered by this review there have been no fundamental developments in headboxes for low speeds. New headboxes installed during this period have either been copies of the old or an attempt to modify the new designs of high speed boxes to the hydrodynamic problems of slow speed machines.

Suction Formation Headboxes

Figure 33 illustrates the arrangement of the headbox and suction formation unit as used on the Stevens Former **(37)**. The formation here is carried out on the sur-

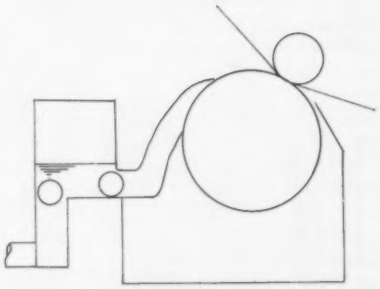


Figure 33: Headbox equipment for the Stevens former.

face of a cylinder mould type roll.

The headbox provided is seen to be the equivalent of the conventional air loaded box with one perforated roll for assistance in distribution, and another more open roll at the front of the box where the slice would normally be. Instead of the normal slice, however, two lips are provided—a special curved bottom lip or apron which ends close to the forming wire and a curved top lip assembly forming a cover to the part of the roll surface where the formation takes place.

By varying the gap between the top lip and the forming wire, as on a conventional slice, and by adjusting the flow, the relative velocity between stock and wire can be changed and, thus, the relative machine and cross direction strengths can be varied.

Most of the remarks made earlier for high speed boxes can be considered as at least partially applicable to the new design. A similar problem for the deposition of stock on a suction mold exists for the rotoformer. In this case a specialized headbox was not originally provided and an attempt to control the flow was made by adjusting the size of the flow passages by means of a large adjustable U shaped insert in the vat. This is a very specialized case and will not be further discussed here.

It is stated that in connection with the newest type of paper and board machine, the Inverform, only the simplest of headboxes is required since the stock from the slice is compressed between the two wires used.

To Be Concluded in the Next Issue

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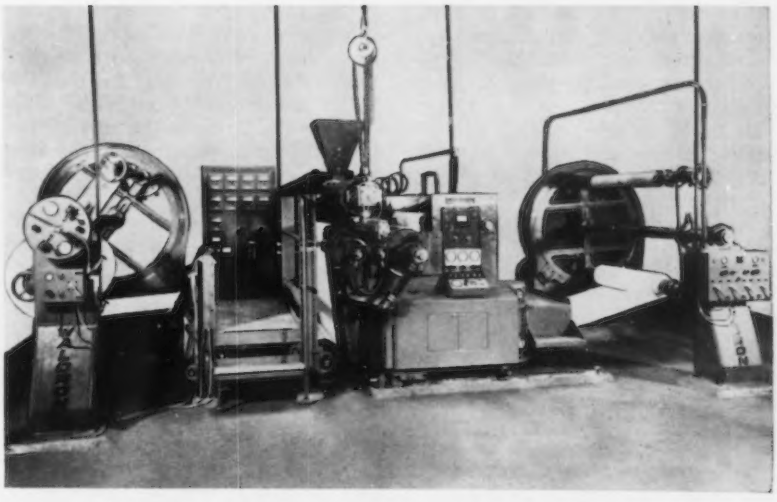
Polyethylene Extruder-Coater Completes Modernization and Expansion Program at Marvellum

The completion of a $500,000 modernization and expansion program at The Marvellum Co. in Holyoke, Mass., was marked by the installation of a new 54-inch polyethylene extruder-coater to assure controlled film thicknesses and continuous operation.

This equipment will enable Marvellum to supply many types of extrusion coating and laminations in addition to its present line of military packaging materials. Typical examples are poly-coated paper for packaging sugar and other dry foods, multiwall bags, and freezer paper. Polyethylene combinations for food packaging and many other applications will also be available.

This new extrusion line was designed especially for Marvellum by the Waldron-Hartig Div. of Midland-Ross Corp. in co-operation with Marvellum's own technical staff.



New extruder-coater features running adjustment of the distance between the die and coating nip for optimum control of bond and heat sealability.

Future of Electronic Instrumentation In the Pulp and Paper Industry

Comparative advantages and disadvantages of electronic versus pneumatic instruments are discussed. The author makes helpful suggestions as to how to decide if to move toward electronic controls.

Edgar Andrews,
Container Corp. of America,
Fernandina Beach, Fla.

The last decade has seen the introduction of electronic transmission and control of process and combustion variables. The last couple of years has seen the entry into the field of the major manufacturers of pneumatic instrumentation.

Will these electronic systems be equally acceptable or even preferable to pneumatic systems? Let's consider this. All of us in the pulp and paper industry have had experience with electronic measuring instruments as many variables are electric in nature, such as pH, motor load, the tachometer, and the magnetic flowmeter. The question is not one of using these or abandoning them; it is whether we will control the variables pneumatically or electronically and further will we control as well as transmit the many variables that are basically pneumatic; such as liquid level and pressure. Before we begin comparing the two systems let us define the limits somewhat. This will be concerned with force-balance type transmitters and controllers not deflecting or mechano-pneumatic instruments. The reason for this is that the latter are generally of much earlier design and do not have the sensitivity, response and accuracy of balance instruments.

At this point it might be worth considering why we are even considering electronic instrumentation. The simple reason is that the paper industry, being a "second cousin" to the chemical and petroleum industries, follow their lead in instrumentation—pneumatic transmission, graphic panels, and pneumatic force balance instruments. We will follow their lead again—however, we will be slower to take up electronic control for two reasons.

TABLE I

ADVANTAGES AND FEATURES

Pneumatic	Electronic
Lower price.	Lower installation cost.
No electric power in field.	No instrument air required.
No shock hazard.	No frozen air lines.
Compatible with simple pressure, and level pilots.	Compatible with loggers and computers.
Choice of round & strip charts.	Faster response & better control.
Complete line available.	Ratio and cascade easy.
Familiar principles and devices.	Trained mechanics available.
All 3 to 15 p.s.i. signals.	Long line transmission.
	Higher accuracy.

Advantages and Disadvantages

The first reason is that the abovementioned advances offered more clear cut advantages than does electronic control. The second is that the paper industry uses much the same old process to make the same types of pulp and paper, whereas the chemical and petroleum industries are always coming up with new products and process for which they build whole new plants—and can easily use a complete new system of instrumentation.

The first reason above is based on a comparison of advantages and features of the two systems. It would be well to consider these as applied to the paper industry. (See Table I)

Note that some highly advertised features are missing from this list, such as: reliability, safety, explosion proof, two wires, serviceability. Most of these are stressing one manufacturer's electronic instrument over another's, not over pneumatics. Some make a big issue over the use of transistors and claim that these instruments require no maintenance. I am not convinced that a completely maintenance free device has been developed, or that transistors are more dependable than vacuum tubes.

Comparative Costs

All evaluations must include costs in dollars and cents. This should include purchase price, installation costs, maintenance costs, and spare parts inventory. Of these, the last two will be known only after long usage with accurate records—I have no data on this so have to assume that it is a standoff.

The first two items are a little easier to add up. Table II shows the comparative prices of two typical systems—a thermal converter output and a spiral pressure measurement.

"Electronic instruments do not have such clear cut advantages that they will be flatly preferred to pneumatic, but should be considered and the choice made as outlined."

TABLE II

COMPARATIVE COSTS OF TWO SYSTEMS

	Thermal Converter	Spiral Pressure
Electronic	$1120	$1025
Pneumatic	1102	817
Dollars Difference	$ 18	$ 208
% Difference	2%	25%

Accessories and diaphram control valves common to both systems are not included in these figures. A stack type positioner is included as well as the appropriate number of air sets.

With the advent of bundled plastic tubing, junction boxes, and plastic tubed panels, the cost of pneumatic installations has come down. Prior to that, electric installations were regarded as cheaper.

Whether or not savings in installation costs will balance the higher instrument prices will depend on each job in question. Further, the value of the various advantages and features will be different for each job. To help in the evaluation, let us consider three different size instrument installations:

Small Project

For one or two controllers, unless one or more of the advantages, such as long line transmission or no instrument air required are very important, it is hard to justify the switch to electronics. However, I still suggest you buy and try an electronic system just as I did. Then you will be in a much better position to evaluate them for yourself.

Large Installation

For a large addition such as a bleach plant, if you have an adequate instrument dry air supply or the plant is indoors, you have a full crew of instrument men, and your management insists on round charts; then the electronic system will be hard to justify. However, before you rule out electronics, compare total costs and all advantages; there may be several stock flows to be metered magnetically and controlled by pump speed. Think how simple it would be electronically using a mag-amp to vary a d.c. motor speed.

Brand New Mill

In the case of a new mill, some of the advantages and costs will stack up quite differently. The cost should be estimated as carefully as possible with the help of a consulting engineer. Be sure to consider the importance of some factors that don't weigh much in the first two cases:

1. Compatibility with logger and computer.
2. The availability of men trained in electronics and with which to build your instrument crew.
3. The elimination of separate instrument air piping, dryers, compressors, etc.

You will note that all three of these favor the electronic system. These have to be balanced against some strong features of pneumatics:

1. Round as well as strip charts are widely available.
2. The pneumatic line is very complete, with integrators, relays, linear flow transmitters, etc.
3. The principles and devices are familiar and time proven.
4. 3 to 15 p.s.i. signal range is almost universal.

There is a place for electronic instruments in the paper industry. They should be considered with pneumatic systems and the choice made as outlined. They don't have such clear-cut advantages that they will be flatly preferred to pneumatics. However, they are new; more and better ones are coming out all the time.

One word of advice—when considering these new instruments don't get carried away with the hardware and the gadgets. Nothing is either good or bad just because it is new—or old for that matter; everything should be judged on its own merits regardless of its age.

Paper presented at the First Pulp & Paper Division, I. S. A., Instrumentation Symposium held at Pensacola, Fla., April 27-29, 1960.

LETTER TO THE EDITOR

European Finishing Problems are Different

DEAR MR. EVANS:

In connection with your recent comprehensive series of articles on paper finishing, you may be interested in the following comments on European practices.

Due to the fact that hourly costs of labor here in Europe are generally lower than in the United States, the problem is not so critical, although costs are rising. Consequently you will not find in Europe as much of an urgency to automate finishing room methods as you now experience in your country.

In view of the above and because the paper grades produced by European mills are more varied than yours (mostly due to the need of greater versatility because of smaller markets), the emphasis is still on hand sorting and counting of fine papers and book papers in sheets. Again because of this process, most European paper in sheets is ream-sealed, even newsprint. Shipping paper on skids of one ton or more is rarely practiced because not too many European printers have facilities for handling skids, nor are many of the railroads prepared to handle unsealed paper on large skids.

Printers, on the other hand, are not quite as spoiled as they are in your country. Most paper is delivered by the mills untrimmed, except certain very special jobs. Strangely enough, because of this condition, the European papermakers have to cut their sheets to closer tolerances on their rotary sheet cutters than American mills were accustomed to do until fairly recently. The very practice of guillotine trimming in the United States has fostered a certain amount of sloppiness in rotary sheet cutting which would not have been permissible in European mills where most paper will leave the mill ream-sealed but untrimmed.

A further difference between European and American practices lies in the fact that few European mills will keep any stocks at all, as they consider this to be the exclusive function of the merchant. European mills will usually insist on receiving reasonable machine trim on each order and will generally consider each order to be a special making order. Their delivery times tend to run considerably longer than those of American mills, frequently to 90 days or even more.

Editor's Note: The writer of the above letter gave us permission to publish this letter but asked that his name be withheld.

General analysis laboratory. Work areas are tailored for highly specialized analyses run at high frequency.

Buckeye Improves Lab Efficiency To Handle Doubled Work Load

Tailored work areas — assembly line methods — internal statistical control procedures — have enabled The Buckeye Cellulose Corp.'s laboratory at Foley, Fla., not only to double lab analyses but also improve plant quality control. The increased lab workload arose when the company doubled its Foley mill's original capacity last year by adding a second production unit.

Don't think it was easy though. Buckeye's lab supervisors spent many a sleepless night trying to find how to run a great many more tests each day in what was already a highly efficient laboratory. At first it seemed these added tests would create such an imbalance in work load and space requirements that expansion of the lab and hiring of more lab technicians were inevitable.

Efficiency Doubled

Here's what happened that actually enabled Buckeye to improve quality control while doubling efficiency without laboratory expansion —and with the purchase of very little new equipment:

1. Work areas were tailored for highly specialized analyses which are run at a high frequency. Every laboratory job was studied. Then each test was broken down into basic analytical steps and written in a simplified but detailed operating procedure handbook.

2. By working with portions, or steps, of a test rather than the entire procedure, it was possible to schedule analysts and equipment use to mesh operations on several tests into a smooth work pattern. The right man, equipment, and sample had to be at the right place at the right time.

3. Laboratory technicians were carefully trained in each testing step.

This breakdown of analyses to assembly line techniques presented Buckeye's "idea men" the problem of improving quality control while doubling efficiency. Many problems were faced and eliminated, but the biggest hurdle was the basic problem of finding who, when, or where an analysis mistake was made. To offset this, Buckeye developed an efficient internal statistical quality control program which maintains a close monitor on each analysis as it is performed.

Buckeye's Foley laboratory runs approximately 50 different analyses on a routine basis. These include all well-known paper pulp tests, plus special tests for dissolving grade pulps. Many of the dissolving pulp tests closely duplicate the lab tests of customers to facilitate closer working relationships. Buckeye's Foley laboratory and the company's research laboratories at Memphis, Tenn., work together to supply customers with complete analytical data on its pulps.

Self-Service Chemicals

Another new twist and time saver was the installation of a self-service chemical dispensing room for standard chemical solutions for use in the laboratory and plant testing stations. Until this change, anyone needing a new chemical solution had to go to the lab; a lab technician had to stop what he was doing, wash the container, and prepare the solution for each request. Now standard chemicals are mixed in bulk and put in laboratory-cleaned and labeled "use size" containers. These labeled containers are placed in the self-service chemical room and are available to anyone concerned with the plant department test stations. All that is required is that the empty container be left and the person picking up the chemical solution note on a check

sheet the chemical and container size taken.

One more method of improving lab efficiency is the method of handling rayon caustic solutions. All rayon caustic solutions are made up by the standard solutions analyst and pumped to various parts of the lab rather than being mixed at the test points or carried in bottles and jars.

Technicians Switch Jobs

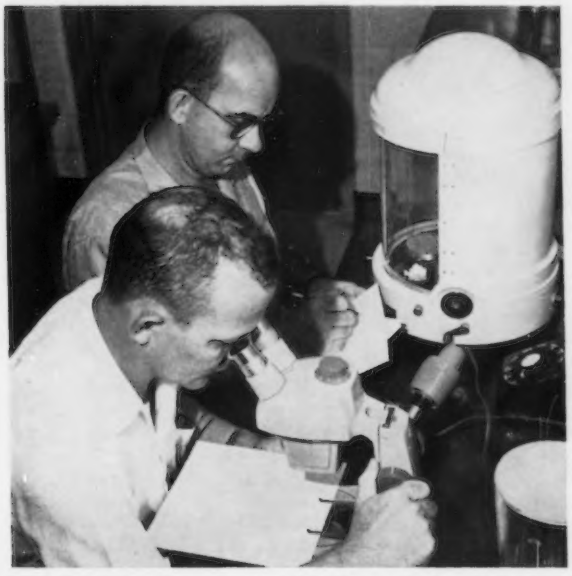
Buckeye laboratory supervisors are finding another internal change is paying off in better quality analysis, higher morale, and general improvement in lab work. Lab technicians work on one type job for seven days and then switch to another job. In this manner, each person works on all types of lab jobs and acquires a better overall picture of the operation.

This switch-about system proved its value when plans were first being made for expanded lab work. With the original mill at Foley at full production, six viscosity tests were run each hour. When the second unit began operation, four more viscosity tests had to be run per hour. Use of the old method would have required an additional person on each shift to run the tests. An analyst, through his overall knowledge of the lab, became interested in the problem and finally reached the basic solution through several improved methods and installation of a low-cost piece of equipment.

Twenty-seven lab technicians were required to handle laboratory work at Buckeye before last year's expansion. Those 27 technicians, with the streamlining of the lab, are now able to process the double capacity brought on by last year's expansion. Four additional employees have been hired to boost quality control and to work with the handling of sample orders.

Buckeye's search for more efficiency in all parts of its operation—while maintaining high quality control—has helped its growth during the past six years. With a multi-million-dollar internal expansion program now under way, Buckeye's two production units at Foley have a present capacity of 260,000 tons a year. In addition to its Foley mill, Buckeye operates a 115,000 ton cotton linter pulp mill in Memphis, and will have a total capacity of 408,000 tons a year when the current expansion at Foley is completed.

A new twist and time saver is the self-service chemical dispensing room for standard chemical solutions. Chemicals are mixed in bulk and put in "use size" containers.



Tire cord pulp is examined with stereo-zoom lens for traces of foreign material.

Lab analyst working on process chemical control analysis. Over 50 different analyses are run on a routine basis.

Some "Cost Cutters" in the Handling of Wet Lap Pulp

One was the elimination of wooden pallet which as they got older resulted in splinters contaminating the pulp. Here is how this and other economies were effected at Oxford.

Malcolm C. White,
Supervisor,
Materials Handling & Storage,
Oxford Paper Co.

Back in 1952, Oxford Paper Co. in Rumford, Me., was producing rolls on a pulp dryer. The rolls weighed approximately 100 pounds each and it required a crew of eight men: five men operated the dryer, one man was a weigher and two men were necessary to load cars.

The rolls, loaded into cars, were either sold or put into storage at what we call the "Island Division." A great deal of pulp has to be put into storage during the winter for use during the following summer. This is due to a stream improvement program on the adjacent Androscoggin River that prevents Oxford from producing sufficient sulphite pulp to meet production requirements during the summer. While the Island mill is physically only a quarter mile away from the main mill, circumstances are such that the material has to be transported either in freight cars or by road truck.

Shifted to Bales

With the increased use of mechanized equipment for material handling, it was decided that we would have to shift from rolls to bales for our dry pulp. Consequently, a bale press was installed. This immediately resulted in a reduction of one man in the dryer crew.

In the time since we initially started baling pulp, this crew has been reduced to five men and our cost for pulp loaded in a car has been reduced by approximately 36 per cent. The cost for transporting pulp to the Island Division has also been reduced because we are able to load 50 tons of baled pulp in a car, compared to the 30 tons of rolled pulp. The baled pulp also requires less storage space and allows much better inventory control.

However, the dryer capacity was not sufficient to take care of both our hardwood kraft pulp and the sulphite pulp requirements. It was necessary to produce hand-laps on five wet machines, plus rolled pulp on two of our oldest paper machines, which were not being used. These old machines each had a capacity of 38 per cent of that of the dryer and yet, the crew required to operate each machine was equal to that used on the dryer. The result was that this was a very expensive method of producing pulp.

Expensive Hand-Laps

The hand-lap machines were also very expensive. It required a crew of one man to tend the five machines, plus one man on each machine to fold the laps and place them on trucks and four men to load the laps into cars. Due to the moisture content of the pulp, the hand-lap operation was the most expensive of the three methods.

It was decided that blanket lap production, while more expensive than dryer operation, would be much cheaper than either the old paper machine roll production or the hand-lap operation. It would require one man as a machine tender and one man to operate the two blanket lap machines. There would be no expensive costs involved in loading because the truck operator who loaded the pulp from the dryer would have sufficient time to load the blanket laps.

The blanket lap machine produces a web of stock eight feet wide making two four-foot-wide strips. The blanket attachment piles the pulp onto "take it or leave it" pallets which were designed to fit our specifications. The pallets sit on four wheel dollies so that as the loads are completed, they are pushed aside and an empty dolly with pallet is put in position. The truck can then remove the pallet from the dollies while the next load is being produced.

The pallet loads were loaded into freight cars for transfer to the Island Division. There, the pulp was stripped from the pallets and placed into storage. As you can imagine, the storage problem was very difficult because the stacks of pulp would lean in any direction. More than one day was spent picking up piles of pulp that had fallen over. Housekeeping was a tremendous problem. Transfer of pulp from storage back to the mill for use employed the same process.

Problem: Wood Pellets

The two major problems we ran into in handling pulp in this manner were space requirement and uneven loads. In order to rectify both of these, a press was installed in the wet machine room. The pallet loads of pulp were placed on this press as they were taken away from the wet machines and the pulp was pressed down, decreasing the volume of space required and making the top surface level so that the pulp could be stacked. The installation of the press was well

(Continued on page 35)

TEST SHEET

TEAR OFF THIS SHEET...

WET IT!

. . . THEN TEST IT! (USE APPROVED TAPPI STANDARD METHOD FOR TESTING WET STRENGTH.) NOTE THE HIGH WET STRENGTH AND HOW WELL THE SHEET MAINTAINS IT. FOR THE SECRET OF THIS SHEET'S WET STRENGTH, JUST TURN PAGE.

CYANAMID

TEST SHEET

THIS SHEET PRODUCED WITH **CYANAMID'S PAREZ 607®**

MELOSTRENGTH® RESIN

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Like all papers made with a MELOSTRENGTH Resin, this sheet has extraordinary strength even when soaked. It had its strength the moment it left the machine. It will keep its strength even under storage conditions of high humidity. It is resistant to most chemicals and acids. MELOSTRENGTH can be applied to papers of practically every strength and grade. It is especially recommended for grocery bags because it minimizes bursting danger during rainy-day shopping or from frozen foods or other moist articles. MELOSTRENGTH is also ideal for the manufacture of patterns, bakery bags, filter paper, butchers' wrap, photographic paper and other wet strength papers. For full information, get in touch with us.

CYANAMID

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worth the cost on the basis of stability alone. We did, however, make some monetary savings because the size of the pressed loads were such that we were able to load three pallets high in the transfer cars, rather than two high as we had previously done. We were also able to pile more tonnage in the same cubic area in our storage locations. Also, by increasing the tonnage stored in the areas which were on track level we were able to cut the handling cost.

This system continued in effect for a few years and then we ran into an additional problem. The "take it or leave it" pallets that were in use for handling pulp were becoming rather old and due to the constant wetting and drying, the wood was splintery. These wood splinters stuck to the wet pulp and we began to have trouble with splinters in the stock. There were several obvious solutions—one was to purchase sufficient pallets so that the pulp could be stored on the pallets up until the time it was used. This would have meant the purchasing of approximately 11,000 pallets at a cost of between 45 to 55 thousand dollars. Another solution was to buy 800 stainless steel or aluminum pallets of the "take it or leave it" design at a probable cost of 28 to 30 thousand dollars. The best solution would of course be to eliminate the pallet all together. That is what we did. We found that by placing the load of blanket lap pulp in the press and leaving the forks underneath the load, we not only compacted the pulp into a stabilized mass, but we also left openings for picking the pulp up at a later date.

Special Pallets

In order to accomplish this, we designed a special pallet and had eight of them made up. These were made of wood with a top covering of metal. An opening four inches deep was left on the top surface so that the forks of the truck could slide in under the load of pulp and lift it off. These pallets were placed on the dollies used at the wet machines. At first, we thought we would have to use metal plates on the floor of the railroad cars, but experience showed that a paper lining would serve the purpose at a much lower cost. In comparing our present cost of handling our sulphite pulp was the original cost, we find that each change effected a small saving and that when they are all put together, we have a very substantial reduction in costs.

From a paper presented at Spring Meeting of Maine-New Hampshire Section, TAPPI, June 17, 1960.

New Process Applies Polyethylene Solution to Paper

William Mullen,
Plant Manager,
Plastic Papers, Inc.

The first truly new process for polyethylene coating paper, board and foil has been developed by Plastic Papers, Inc., Hicksville, N. Y. Coating equipment was both designed and built by Plastic Papers and is unavailable elsewhere in the industry. A solution coating method, not to be confused with "hot-melt" coating, provides an elastic film, grease-resistant, easily heat-sealed and possessing all polyethylene barrier characteristics.

Plastic Papers' process, known as Contour Coating, consists of dissolving polyethylene in a solvent, then flowing the homogeneous solution uniformly on to the paper or board. The solvent is then completely removed, the polyethylene remaining as a uniform, continuous film on the backing material.

Advantages of Process

Absence of pin holes. Inasmuch as there is no stretching of what frequently is a gossamer-thin film as in extrusion lamination, there is no film rupture resulting in pin holes. Extruded coatings containing pin holes provide less barrier protection than solution coatings, particularly on light coating weights. Moisture-barrier values are substantially superior to an equivalent weight coating applied by extrusion.

Superior bond. Extruded film has a tendency to "bridge" over depressions in the backing paper, thereby causing delamination of the film from the substrate. Because Contour Coating flows the polyethylene on the backing paper, there is no bridging. In addition, a stronger bond is formed between the film and substrate.

Uniform barrier qualities. Caliper of paper varies, resulting in high and low spots. With hot-melt type of coatings, "lows" receive a heavier application of polyethylene than "highs," resulting in uneven barrier characteristics. Contour Coating (as the term implies) actually follows the surface configuration of the sheet, covering both "highs" and "lows" equally so that barrier properties are uniform.

Crease resistance. Since the coating is a stretchable film (as contrasted with hot-melt), there is no cracking of the coating when creased or folded. Barrier protection is uniformly high. There is no reduction in moisture-vapor values in the crease or score.

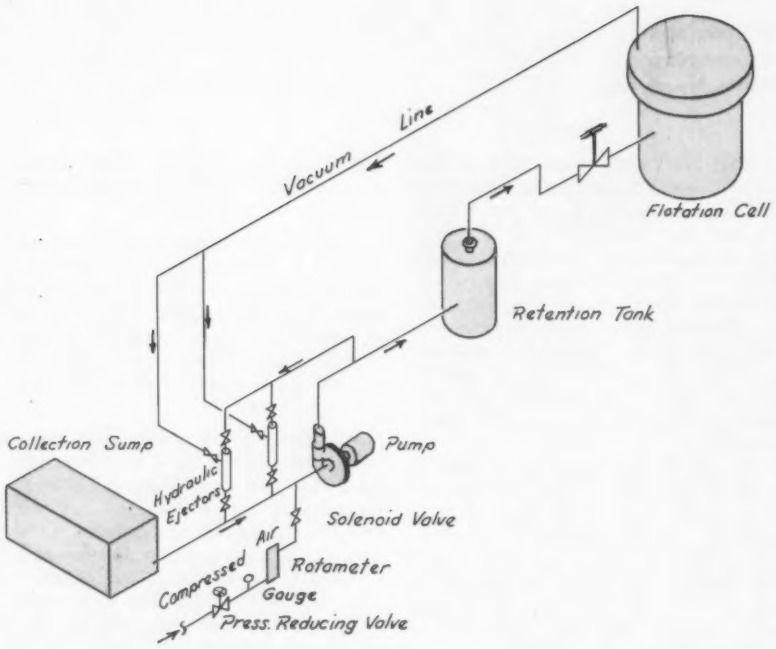
Elimination of overweight coatings. Frequently, light coatings applied by the extrusion lamination process are run overweight in order to reduce pin holes and breaks in the film. This is expensive to the converter because his yield per pound is reduced. Contour Coating is accurate in all weights, including light weights which are difficult for other coating methods to control accurately.

Possible reduction of coating weights. Contour Coating may allow a reduction of coating weight without any sacrifice in barrier qualities since it is not necessary to overspecify coatings on paper "highs". This reduction of coating weight (and cost) may allow polyethylene to replace such barrier materials as asphalt and wax at little or no increase in cost.

Electrostatic treating equipment is on order which will make solution coated polyethylene glueable with standard paper adhesives. This will allow the bag or box maker to convert Plastic Papers' Contour Coating without changing to special adhesives. Also, equipment is being installed to laminate two plies of paper with polyethylene. This will completely eliminate pasting problems in those areas where use of a sandwich sheet is practical.

In summary, at prices competitive with extrusion coatings, Contour Coating makes available polyethylene coatings with superior barrier characteristics. Advantages are particularly emphasized with light weight coatings that extrusion equipment has difficulty in controlling within close tolerances.

NEW EQUIPMENT & SUPPLIES



Separation-by-Flotation System Uses Vacuum Assist

A development in the field of flotation is announced by Pollution Control Engineering, Inc. It involves a combination of old and new methods which produces an effective means of solids-liquid or liquid-liquid separation, according to Mr. Harold Jackson, sales manager.

Many flotation systems currently in use utilize the fully pressurized flow principle with an air injector. Aspirated air is pre-mixed with the entraining liquid as it passes through the injectors. This air is drawn through a rotameter. It is either taken from the atmosphere or, if a gas other than air is used, the gas supply is connected to the rotameter inlet.

The new method utilizes this dissolved gas principle plus a vacuum assist to more effectively remove contaminants from waste water. Referring to the isometric sketch, it can be seen that the suction openings of the injectors are connected by manifold piping to the top of the gas tight flotation cell. Rather than drawing air from the atmosphere, this system now creates a negative pressure above the liquid in the flotation cell. Recycled gas (on air) is returned to the suction of the main process pump; make-up gas (or air) is only required in sufficient quantity to assure a gas (or air) saturated influent.

The main process pump not only develops sufficient pressure for dissolving gas in the liquid flow but also creates the required vacuum. Standard pumps are used with special piping on the suction and discharge sides, as shown in the photograph. Write to Pollution Control Engineering, Inc., 595 East Colorado Blvd., Pasadena, Cal., for further information.

Oil-shear Holdback Controls Web Tension In Slitter

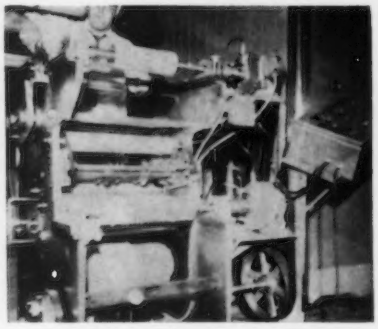
The Web Controls Corp. announces the availability of a Universal Slitter that controls tensions by incorporating an oil-shear hold-back and rewind clutch. Automatic constant tension and controlled, or tapered tension on the rewind is accomplished by means of a follower on the unwind.

Selection of web tensions is made by the operator on a Vernier Master Control feeding filtered voltages (d.c.) into coils of the Oil-Shear units. Master Control settings may be adjusted two or three times during processing, dependent upon build-up. For automatic control a follower or tachometer generator system is used.

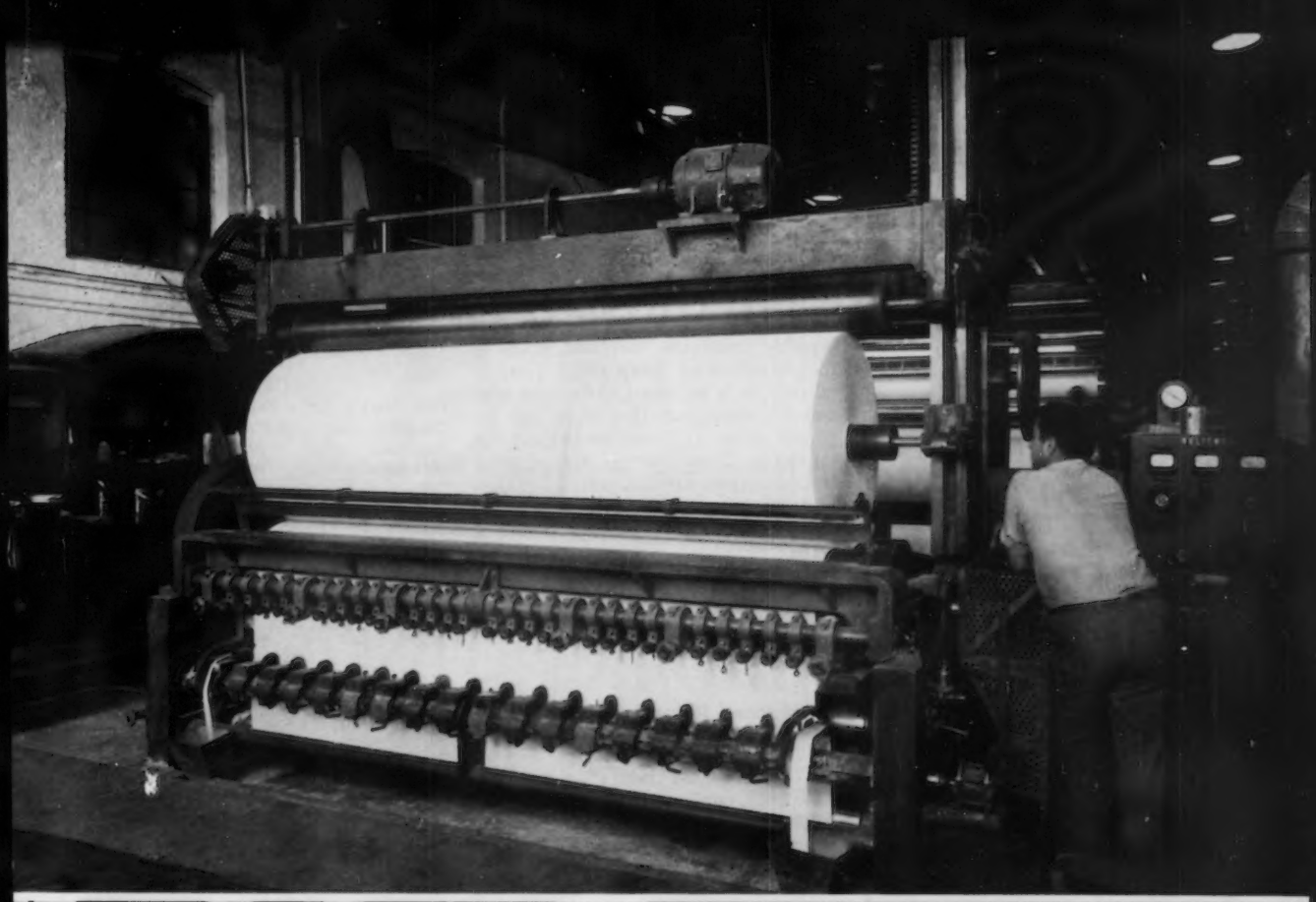
Misaligned material on the unwind can be fed into the slitting head at a consistent edge alignment by means of a low pressure, air-operated sensing head and cylinder which oscillates the ball bushing mounted unwind stand. A skewing roll has been provided for uneven webs across the width. For radically uneven webs (bellied dropped edges, etc.) a Mt. Hope roll or herringbone roll is available as an option.

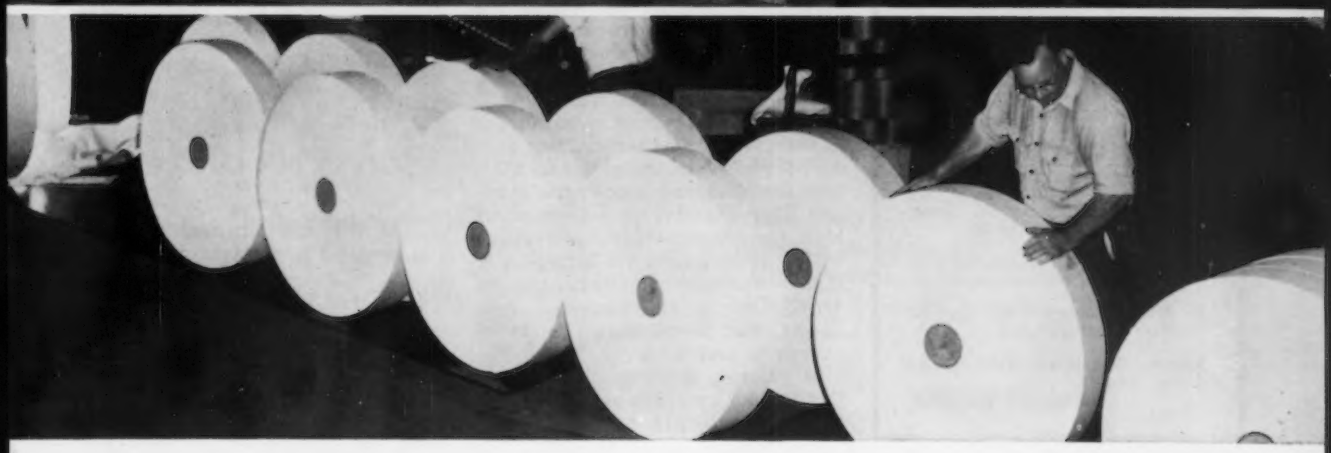
Various methods of slitting—burst, score, shear and razor blade—may be obtained by easily interchanging slitting cartridges. Pull rolls are put to use for stripping the material from the unwind. Two rewinds will wind, independently, at constant tensions, double sheets of web material, single sheets slit into various widths on either rewind or both at the same time, regardless of slit widths.

The manufacturer claims another advantage in winding slit web is that it is possible to stagger cuts on the individual rewind shafts, giving a better side finish and eliminating interlocking spools and separator plates.



The rewind shafts feature a skewing adjustment, rubber slugs for paper core gripping, or pneumatically expanding arbors, as well as a bayonett lock for quick loading and unloading. Electronically controlled variable speeds may be incorporated. In most cases rewind and unwind





Slit, wound, ready to ship — one operation

These photos show how the Franconia Paper Corporation eliminated a costly rewinding operation.

You're looking at a Kidder 125-inch Master Mill Winder, installed in the Franconia plant as a paper machine slitter-winder nearly three years ago. Since then this high speed, high quality machine has been steadily producing rolls — as narrow as 6 inches, with diameters up to 40 inches — saving time and money every time it goes to work.

If you are producing similar rolls — and still rewinding them as a separate operation — it will pay you to find out how surely and easily you can cut your finishing room costs. Write today to Kidder Press Company, Inc., Dover, N. H. Eastern Sales Office: Empire State Bldg., New York 1, N. Y. Mid-West Sales Office: 400 Washington Bldg., Madison 3, Wis. West Coast Representative: Bojanower Machinery Service Corp., 5270 E. Washington Blvd., Los Angeles 22, California.

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shafts are interchangeable. The Web Controls new Universal Slitter is furnished in widths from 8 inches to 72 inches. For complete details write to Web Controls Corp., Dept. S., 318 Briarcliffe Road, West Englewood, N. J.

Steel Strapping Tensioner Has Unlimited Takeup

The Signode Model TH Tensioner is a manual action strapping tool, with self-energized feed wheel that holds high tension. It takes strapping directly from the coil and saves a foot or more of strap every time it is used, it is reported. Any type seal can be used and the seals can be placed either in front or behind the tensioner. Light weight and easy to use, it weighs only six pounds. Makes vertical or horizontal strapping. Takes strap sizes from ¾ inches x .028 inches to 1¼ inches x .050 inches, waxed, painted or coated. For additional information, write: Signode Steel Strapping Co., 2600 North Western Ave., Chicago 47, Ill.

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E & M Lamort Fils, Vitry-le-Francois (Marne) France

Joseph Winterburn Ltd., Bury, Lancs., England

Submerged Filter Systems For Corrosive Solutions

To supply the need for a small, leakproof, continuous duty, and easy-to-operate filter system to filter small volumes of corrosive solutions, Sethco Manufacturing Corp., Merrick, L. I., N. Y., introduces the Sub series of submerged filter systems. Full-view filter chambers form a complete unit with its pump. There are no wearing parts and there is never any danger of aeration or leakage, it is further claimed.

For resistance to acids and alkalies, the standard submerged pump and filter chamber is fabricated of high temperature lucite and epoxy with stainless steel 316 fittings. For high temperature applications above 140°F., epoxy, stainless steel type 316 or teflon is substituted for lucite in pump and filter chamber. For high chloride applications, hastelloy C, titanium, or epoxy replaces stainless steel type 316 fitings.

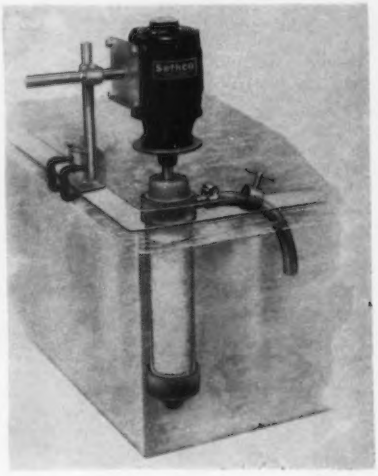
Thorough depth filtration down to 1 micron is provided by filter tubes of cotton or dynel. Also available are porous stone and porous carbon filter tubes.

Power for the pump is supplied by a 1/8 h.p. 115 volt, Universal ball bearing motor.

Two models available at present have the following specifications:

	SUBLL-5	SUBLL-10
Cap., g.p.h.	50-75	100-150
Chamber (in.)	3½ x 9	3½ x 9
Ht. (in.)	20	24
Wt. (lbs.)	20	25

The pump itself, which is the same for both models, delivers 360 gallons per hour on open pumping and develops a pressure of 17 p.s.i. at shut off.

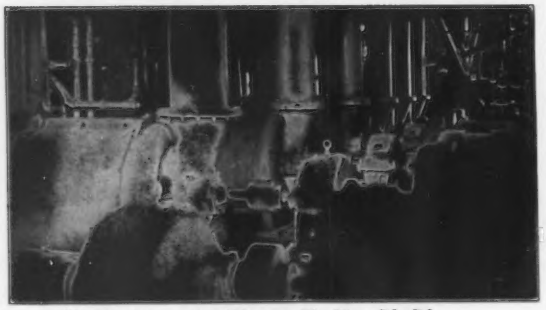


Flow regulations is provided by compression of the vinyl hose by means of a stainless steel pinch valve. Both are furnished by the manufacturer with each filter. A skimmer is also available for skimming and filtering the surface of the solution.

Three APMEWS Replaced a Big Room Full of Flat Screens in Bond Paper Mill

"Apmew centrifugal pulp cleaners & screens have now been installed and are working very satisfactorily." Centrifugally cleaner, more salable paper is being produced for big profits.

Occupy 10 feet by 30 feet—SAVE 81 feet by 96 feet



APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.

PAPER TRADE JOURNAL is always mailed on Friday and should be received in most parts of the country early in the week. If there seems to be undue delay in receiving your copy, we suggest that you write to your local postmaster, with a copy to the postmaster at East Stroudsburg, Pa., where we mail and a copy to us.

Modern Methods of

Mechanical Pulp Manufacture

Covers comprehensively all aspects of groundwood pulp production. The author, K. H. Klemm, has a broad knowledge of groundwood manufacturing methods and has been associated with groundwood mills on both sides of the Atlantic. $5.00

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NEWS OF SUPPLIERS

GROUP OF SPANISH PAPERMAKERS who recently visited the head office and plant of Thiry & Co. of Huy, Belgium. The group was under the leadership of Sola Drou from Spanish ATIP and M. Oudin from the French ATIP.

Combustion Engineering, Inc., whose general offices have been located in New York for more than 45 years, has transferred them to Windsor, Conn. Included in the move is the paper mill equipment department. The phone number is Murdock 8-1911.

Wisconsin Wire Works, Appleton, Wis., announces the appointment of John F. Howell as representative for paper mill wire cloth in the state of New York. Mr. Howell previously represented a leading felt manufacturer in the paper industries.

George Clayton, who previously serviced New York State, is now concentrating his efforts in Virginia and West Virginia.

The Borden Chemical Co., a division of The Borden Co., has announced the appointment of William R. Moffitt as senior vice president for manufacturing and engineering.

Mr. Moffitt joined the firm's chemical laboratories in Bainbridge in 1938 as a chemist, upon completion of two years' work as a fellowship assistant at the Mellon Institute, Pittsburgh.

Mr. Moffitt is a graduate of the University of Pittsburgh. He joined Borden's development staff in Seattle in 1942 advancing through the various positions to become vice president and technical director in 1954.

Mr. Moffitt will continue to make his offices at the company's New York headquarters.

Also announced was the appointment of Samuel Loshaek to the position of director of product development.

Joining The Borden Chemical Co. in 1955 as a group leader at the company's central research laboratories in North Philadelphia, he was promoted in 1957 to head up the thermoplastics laboratory.

Mr. Loshaek received his B.S. in chemical engineering in 1945 and an M.S. in chemistry in 1946 from the University of Alberta, Edmonton, Canada. He also received a Ph.D. in chemistry in 1950 from the University of Wisconsin, Madison, Wis. He will make his offices at Borden Chemical Co. headquarters in New York City.

Morden Machines Co., Portland, Ore., manufacturer of stock preparation equipment has appointed Ivan Kuhns sales and service engineer in its Southern Region.

Mr. Kuhns, who comes to Morden from the Erie, Pa., plant of Hammermill Paper Co., where he was a senior engineer, will devote a substantial amount of his time to Morden Pulpers and the introduction of the new Morden Disco-Finer, a revolutionary new machine designed for defibering and refining. The high capacity Disco-Finer is especially well adapted to the huge mills in the southland.

Mr. Kuhns received his degree in mechanical engineering from Tri-State College, Angola, Ind., in 1954. He will make his headquarters in Atlanta, Ga.

Huyck Felt Co., Division of Huyck Corp., Rensselaer, N. Y., announces the appointment of H. Clark Lind as research engineer. Mr. Lind, a paper engineering graduate of Lowell Technological Institute, was previously employed as a development engineer for Texon, Inc., South Hadley Falls, Mass. His previous paper mill experience will aid him greatly in his new assignment at Huyck where he will work closely with papermakers to develop improved constructions and finishing techniques.

Ivan Kuhns

H. C. Lind

T. A. Burke

W. H. Plowman

Albany Felt Co., Albany, N. Y., has appointed Thomas A. Burke as sales engineer to take over the sales territory of parts of Michigan, Illinois and Indiana.

A graduate of Siena College, Loudonville, N. Y., Mr. Burke held positions with the Universal Atlas Cement Co. and Norcross, Inc., before joining Albany Felt.

Goulds Pumps, Inc., Seneca Falls, N. Y., announces that W. H. Plowman, manager of Southwest sales, is now permanently located in Houston having moved there from Tulsa where he has been for the past several years. Gould Pumps, maintains offices in Tulsa and Houston.

RONALD GILBERT, general sales manager of newly established Goulds Pumps International, Inc., discusses market coverage to be provided with Eric E. Backlund, vice president, of Goulds Pumps, Inc.

Goulds Pumps, Inc., Seneca Falls, N. Y., has announced the establishment of a separate corporation, Goulds Pumps International, Inc., to handle all export sales of the company. Offices of the new company are located at 260 Madison Ave., New York 16, N. Y. The new arrangement covers all products manufactured by the 112-year-old manufacturer of pumping equipment and includes both its complete line of jet and submersible type domestic water systems and its broad range of centrifugal pumps in sizes from ¾ to 30 inches providing capacities from 10 to 40,000 g.p.m. and used in all types of industry. The company is well established as a major supplier of corrosion resistant pumps for the chemical processing, paper, petroleum and similar industries.

World wide coverage of all important markets, excepting Continental United States, Alaska and Canada, will be provided by the new company through its staff of factory trained engineers, all of whom have wide experience in foreign sales.

The company urges that all inquiries, correspondence, etc., covering the sale or usage of its product in foreign fields be directed to the new corporation — Goulds Pumps International, Inc., 260 Madison Ave., New York 16, N. Y.

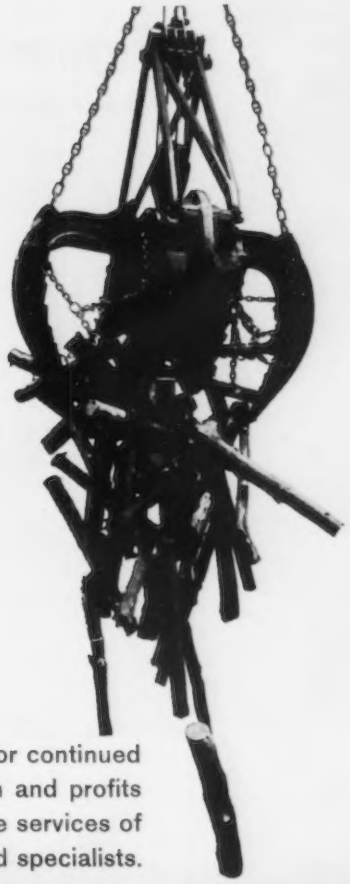
Frank W. Egan & Co., Somerville, N. J., has named Frederick A. Gill sales engineer in the paper division. Mr. Gill served five years as a development chemist and engineer for Plastic Coating Corp., Holyoke, Mass., and four years previous to that as an analytical chemist with Johns-Manville Research Center, Manville, N. J. He received his B.A. degree from Hunter College in 1951 with a major in chemistry.

Another newcomer to the Egan staff is Milton G. Ludwigson of South Bound Brook, N. J. He was awarded his B.S. degree from Stevens Institute of Technology this June and has been assigned to the engineering department.

Instron Engineering Corp., Canton, Mass., has named James L. Musgrove Southwestern regional sales manager. Instron manufactures a universal testing instrument.

Mr. Musgrove is a graduate of Purdue University with a degree in electrical engineering and has been with the Foxboro Co.'s sales organization. He will set up offices in Houston, Tex.

Reinhold-Gould, Inc., distributor of pulp, paper, board and machinery in both domestic and foreign markets has opened a European office. Reinhold-Goulds world headquarters are located at 535 Fifth Avenue, New York City. The address of



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the new office is Reinhold-Gould G.m.b.H., 5 Sandthorquai, Hamburg 11, Germany.

Alfred H. Hernball is resident manager. He is assisted by a sales and technical staff. The European office will serve the Common Market and Reinhold-Gould will be able to render the best possible service by direct representation of North American manufacturers.

The company has a large staff covering the United States and its Export and Import Division has agents throughout the world.

The new office in Hamburg covering the European market is another progressive step in representing American manufacturers and servicing their European customers. It follows the acquisition several years ago of Gaillet & Hartig, Inc., a pulp sales organization, which has enabled Reinhold-Gould to expand further its pulp operations on an international basis.

Corn Products Sales Co. has appointed E. Carl Snyder manager of sales-service for the Industrial Division. He succeeds Thomas A. Bruce who has returned to the West Coast as assistant western regional manager of the Industrial Division. In the company's New York headquarters, Mr. Snyder heads a nationwide staff of sales-service field men who furnish technical assistance to users of the company's products. He joined the Corn Products organization in 1946 in the Research Department. Moving into the Technical Service Department at the Argo plant, in 1954, he later became assistant manager of technical service. He is a graduate of Renssalaer Polytechnic Institute and holds a degree in chemistry.

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Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	June 25	July 2	July 9	July 16	July 23
1960	97.2	88.6r	58.5r	84.2r	90.9
	June 27	July 4	July 11	July 18	July 25
1959	96.0	71.7	71.5	90.3	94.9

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.7	97.9	98.3	97.0	97.9‡	96.3‡	—	—	—	—	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	94.0

‡ Preliminary

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	94.2	91.4	95.6	99.1	91.9	85.9	91.3	96.1
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	94.0	—

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	June 25	July 2	July 9	July 16	July 23
1960	94	90	50	74	91
	June 27	July 4	July 11	July 18	July 25
1959	98	82	56	84	94

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	—	—	—	—	—	—	—
1959	89	94	95	94	96	96	83	97	92	96	94	80	92

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING July 23, 1960	LAST WEEK ENDING July 16, 1960	CUMULATIVE TO DATE Jan. 1 to July 23, 1960, incl.
% Activity	91%	74%	91%
Total	310,052	248,079	8,908,048
Containerboard—Domestic Use	163,992	134,715	4,576,887
Liner	110,391	92,862	3,053,327
Corrugating Material	48,141	37,302	1,373,166
Chip & Filler Board	5,460	4,551	150,394
Boxboard—Domestic Use	89,801	74,601	2,780,122
Folding	54,037	42,440	1,660,269
Set-Up	10,342	5,998	313,892
Special Food Board	25,422	26,163	805,961
Other Paperboard	56,259	38,763	1,551,039
Containerboard Type	26,270	21,650	740,009
Boxboard Type	29,989	17,113	811,030
Total Orders			
Received	316,273	272,867	
Unfilled End of Week	464,279	474,165	

Quality seam construction needs a high solids paste... the most economical product to fill the bill is...

FOXHEAD®
starch

WRITE OR PHONE
Corn Products for expert technical assistance.. helpful data on these fine products for Papermakers:
BUFFALO® • GLOBE® • TEN-O-FILM® • MILO-FILM® • TEXO-FILM® • FOXHEAD® starches • GLOBE® dextrines and gums • EXCELLO® dextrines

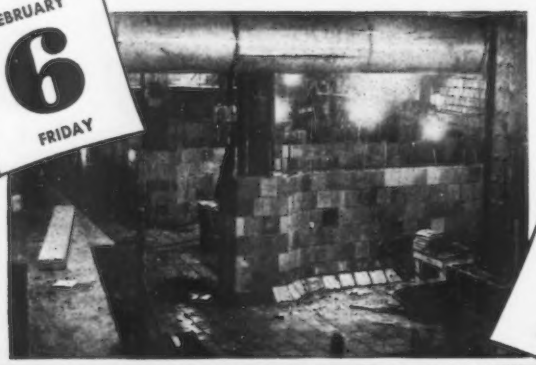
CORN PRODUCTS DIVISION CORN PRODUCTS SALES COMPANY • 9 East 55 Street, New York 22, N. Y.

Chest out of Service

FEBRUARY 3 TUESDAY

Preliminary Clearing Operations Begin

FEBRUARY 6 FRIDAY



FEBRUARY 8 MONDAY

Installation Complete after 6 Days

Only 8 DAYS

...Only STEBBINS has the Experience, Manpower and Facilities for this EMERGENCY SERVICE

Photos courtesy of Great Northern Paper Co., Millinocket, Maine

SCOPE OF WORK:
Line a 91' x 48' x 14'3" Chest
Install 4 SEMTILE® Midfeathers
Tile Encase 2 Steel Columns

MATERIALS INSTALLED:
14,000 SEMPLATE®
5,000 SEMTILE®
150 cu. yd. concrete floor fill
20,000 common brick
400 concrete block
3900 sq. ft. wire mesh

TIME SCHEDULE:
7 days for material delivery
6 days for tile installation
Chest out of service only 8 days
Only 2 weeks from concept to completion

ACKNOWLEDGEMENT:
This remarkable performance was made possible only by the extreme cooperation of the engineering and maintenance staff of the Great Northern Paper Company.

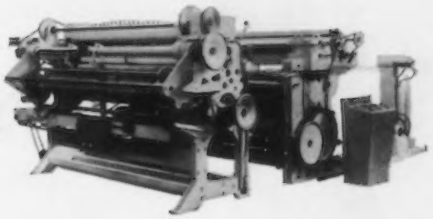
SINCE 1884
Specialists in Design Installation and Servicing of Linings and Tile Tanks

STEBBINS Engineering and Manufacturing Company

SEMCO

WATERTOWN, N. Y. • PENSACOLA, FLORIDA
STEBBINS ENGINEERING CORP. — 2611 MARKET ST., SEATTLE 7, WASH.
CANADIAN STEBBINS ENGINEERING & MANUFACTURING CO., LTD.
TOWN OF MOUNT ROYAL, MONTREAL 9 • MERCHANT EXCHANGE BLDG., VANCOUVER

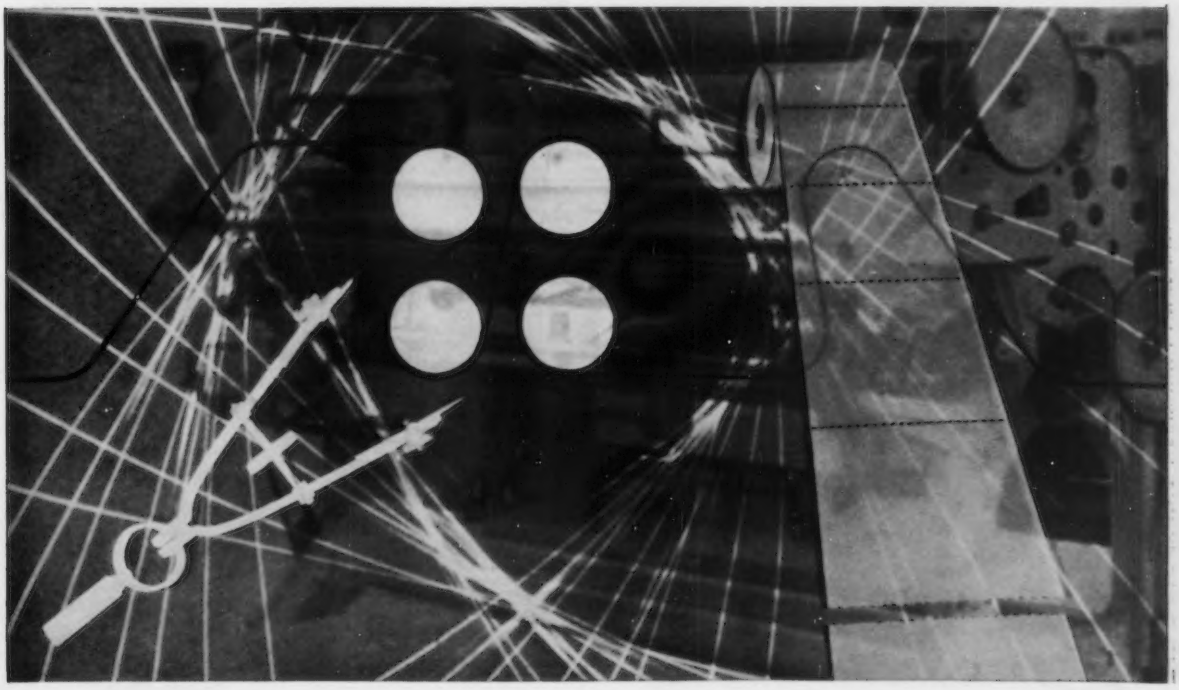
Creative engineering and development of converting machinery



New Rewinder — over 1,000 feet per minute, completely automatic! This new Model 2481 90" Rewinder operates continuously at speeds over 1000 feet per minute, automatically transferring the web for each set of rolls while running at full speed. One operator easily operates two of these rewinders because the mandrels remain in the machine and the automatic core loader eliminates manual labor. It has Paper Converting's new Shear-Cut Perforator, micrometer adjustment for accurate control of nip pressure on embosser, 60" diameter jumbo rolls with automatic constant tension dancer roll control. The ideas in this rewinder typify the *creative* engineering in all our converting machinery. Ideas that mean profit on your production line.

PAPER CONVERTING MACHINE COMPANY · GREEN BAY, WISCONSIN

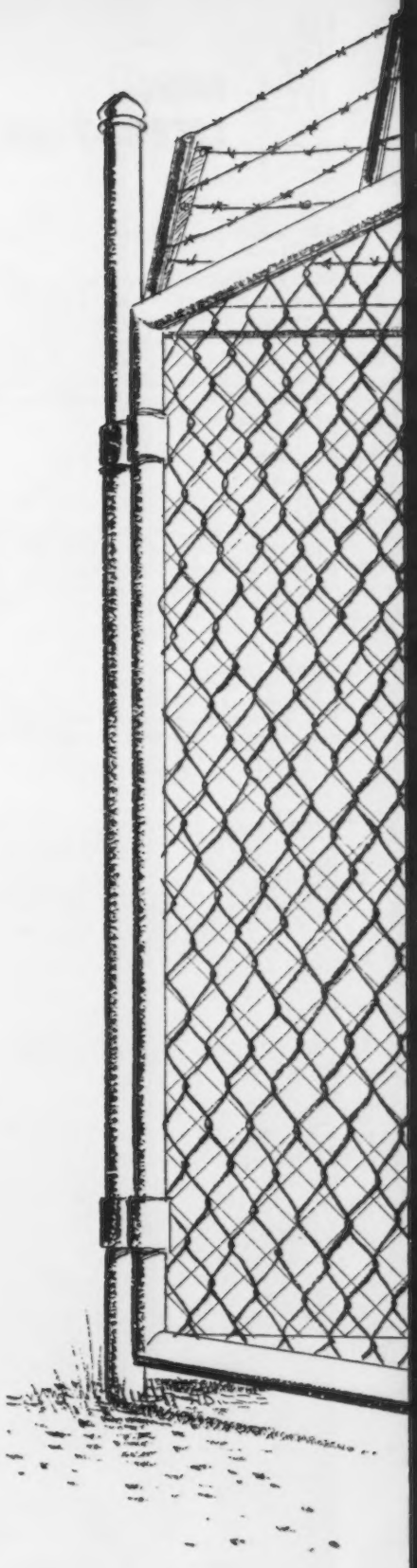
Folders, Rewinders, Embossers, Napkin and Core Machines, Letterpress and Flexographic Presses, Special Converting Machinery



GATX 16527
DANGEROUS

The vital chemical reaction . . . customer confidence

Order delivered. Responsibility ended? Not as we see it. If a customer has a caustic storage problem, we help him work it out. If his employees need instruction in the proper handling of chlorine, we offer this instruction. For, to us the business of a chlorine-caustic producer is by nature part science, part service. This explains much of what we do. It is why, though we are producers of raw-material chemicals, we duplicate in our laboratories the manufacturing processes that involve them. It is why we make it our business to understand yours as fully as possible. Going beyond our required responsibilities whenever we can be of help is a fixed habit at Wyandotte, and it has earned for us that vital chemical reaction . . . the confidence of our customers. May we serve you? *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*



WYANDOTTE CHEMICALS

MICHIGAN ALKALI DIVISION

Pacing progress with creative chemistry®

NEW LITERATURE

Albert Torsion Tear Tester

Tells how this was developed to measure shear strength or tearing resistance of strongly directional materials which are difficult to measure by other test methods. Also includes typical applications. Bulletin 265. Thwing-Albert Instrument Co., Penn St. and Pulaski Ave., Philadelphia 44, Pa.

Conoflow Transmitter

Shows typical applications of the Model P as a pressure transmitter and as a liquid level transmitter. This can be mounted either horizontally or vertically on both open and closed tanks. Bulletin P-36-1. Conoflow Corp., 2100 Arch St., Philadelphia 3, Pa.

Closed Circuit TV

Provided detailed information on GE's new transistorized closed circuit television camera—Type TE-9A. Charts are included which show how individual systems can be custom-built with standard units in their Intra-Tel closed circuit line. Bulletin ECL 85. General Electric Communication Products Dept., P. O. Box 4197, Lynchburg, Va.

Feeders and Rotary Valves

Describes and illustrates their complete line of roll and vane-type feeders and rotary valves. Tables give key dimension and capacity figures. Bulletin F-5A. Fuller Co., Catasauqua, Pa.

Gyro-Integrating Mass Flowmeter

Includes ratings and typical applications for this industrial mass flowmeter. Also includes a discussion of benefits of converting from volumetric to mass flow measurement in various industrial applications. Bulletin GEZ-3025. General Electric Co., Schenectady 5, N. Y.

Hazards Handbook

Discusses the measurement, detection, correction, and litigation of casualty, fire, pollution and product-liability hazards. Also stresses prevention of these hazards. Booklet. Foster D. Snell, Inc., 29 West 15th St., New York 11, N. Y.

Do You Talk 'Computerese?'

This 22 page booklet compiled by E. A. Murphy Jr., staff editor of the M-H's "Instrumentation" magazine, defines some 82 terms perculiar to analog and digital computers. Brown Instruments Div., Minneapolis-Honeywell Regulator Co., Wayne & Windrim, Philadelphia, Pa.

Indicating Pneumatic Controllers

Describes Series 624 controllers, as well as including specifications and lists of models for controlling pressure, vacuum, liquid level, flow, temperature, and humidity. Bulletin DM058. Bristol Co., Waterbury, Conn.

Ideas-in-Action Report No. S6-12

Shows how companies have achieved tighter, more compact bales, lower material costs, and greatly increased baling output with the A4 steelstrapper which is particularly suited for baling. Illustrates several different types of baling operations. Acme Steel Co., 135th St. & Perry Ave., Chicago 27, Ill.

Low-Impedance Bus Duct

Contains application data and information necessary to layout, specify and

"Known by the Reliability of its Service as well as the Quality of its Product"
GREAT EASTERN
GE
Quality
Service
Reliability
GREAT EASTERN
PACKING & PAPER STOCK CORP.
53-01 GRAND AVENUE, MASPETH 78, NEW YORK • EVERGREEN 6-2565
STATION & HALLECK STREETS, BOSTON 20, MASS. • GARRISON 7-5720
SALES OFFICE: 250 PARK AVENUE, NEW YORK 17, NEW YORK • YU-KON 6-7840

install this type of bus duct. Application Data 30-662. Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa.

Pressure-Temperature Compensators

Illustrates electric and pneumatic systems which compensate fluid flow for variations in pressure and temperature. Bulletin 21. Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

Pump Drives and Accessories

Describes and illustrates numerous drives and some of the improved accessories available from stock to users of Eco rotary, gear and centrifugal pumps. Bulletin PD760. Eco Engineering Co., 12 New York Ave., Newark 1, N. J.

Tailored Torque

Explains operating principle, describes several clutch, brake and clutch-brake applications, outlines specific operating advantages and includes torque ratings and package dimensions for the complete product line. Brochure. Warner Electric Brake & Clutch Co., P-78, Beloit, Wis.

Tisco Jordan Fillings

Features Tisco fillings for Jordan-type engines and also illustrates other products for the pulp, paper and roofing industries. Special sections provide assembly instructions for plug sleeves and liners. Bulletin 3-60-5M. Taylor-Wharton Co., Div. of Harsco Corp., High Bridge, N. J.

Ucon Fluids and Lubricants

Contains comprehensive data on 32 types of Ucon synthetic fluids and lubricants, as well as descriptions of their properties and uses., storage and handling instructions and a special section on selection for any given application. 52p Booklet. Union Carbide Chemicals Co., 30 E. 42nd St., New York 17, N. Y.

Union Bonnet Bronze Gate Valves

Sectional views detail the features of Figure 3125 bronze gate valve. Available in sizes ¼ to 2-inch. Circular. Lunkenheimer Co., Cincinnati 14, Ohio.

Use of Dicalite Materials

Sets forth the many uses of diatomite in paper and pulp mills including details of diatomite application in groundwood, sulphite, soda and kraft papers, boards, roofing felt, molded paper products and asbestos sheets. Bulletin F53. Dicalite Dept., Great Lakes Carbon Corp., 612 S. Flower St., Los Angeles 17, Calif.

Prices of Fibers

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$90.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	‡152.00/160.00				$157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		140.00/ —		
Kraft, Semi-bleached.	140.00/145.00				
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡150.00/155.00	‡150.00/155.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l, Gl'an		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED JULY 26

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	9.00/ —
3	$7.50/7.00	$8.50/7.50	$7.50/7.00	8.50/8.00
4	7.00/6.25	7.25/6.25	6.50/6.25	7.75/ —
5	6.25/5.75	6.00/5.50	6.00/5.50	7.50/7.00
6	5.75/4.75	5.25/5.00	5.25/5.00	6.50/4.50
7	4.75/4.25	4.50/4.00	4.75/4.00	4.25/4.00

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Aug. 1	Aug. 1	August	August
No. 1 Mixed Paper	$ 7.00/ 9.00	9.00/ 11.00	6.00/ —	11.00/ 13.00
No. 1 News	12.00/ 13.00	10.00/ 11.00	13.00/ —	12.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	18.00/ —	18.00/ 19.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	9.00/ —	12.00/ 14.00
Old Corrugated Containers	19.00/ 20.00	19.50/ 20.00	20.00/ —	23.00/ —
Super Assorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ —	35.00/ —	35.00/ —
(Semi-chem. medium)	47.50/ —	47.50/ —	45.00/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	60.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd.	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	15.00/ —	32.50/ 35.00
White Newsblanks	47.50/ 52.50	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	57.50/ 60.00	60.00/ —	70.00/ 75.00
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	85.00/ 95.00
Hd. White nv. Cuts	100.00/105.00	105.00/110.00	90.00/ —	110.00/113.00
Col. Tab. Cards	42.50/ 45.00	42.50/ 45.00	45.00/ —	40.00/ 45.00
Manila Tab. Cards	62.50/ 65.00	62.50/ 65.00	65.00/ —	70.00/ —
No. 1 Col. Ledger	35.00/ 40.00	35.00/ 40.00	40.00/ —	27.00/ 29.50
White Ledger	48.50/ 52.50	50.00/ 55.00	50.00/ —	50.00/ 55.00
Mixed Book & Mag.†	— / —	— / —	12.50/ —	— / —
No. 1 Books§	16.50/ 19.00	14.50/ 16.50	27.50/ —	13.50/ 14.00

† Includes Time & Life; no coarse groundwood. § Not to exceed 10% of groundwood.

Consistent!

Without attention, without variation, without let-up—DeZurik Stock Consistency Regulators control consistencies in mills all over the world.

These DeZurik Regulators—Pipe Line type—handle the full volume of stock. Two other types—Stuff Box and Pan—adapt to a wide variety of installations and tonnages! They're guaranteed to hold within limits of plus or minus .1%—and many are holding to plus or minus .02%!

Get more information from

DeZURIK CORPORATION
SARTELL, MINNESOTA

DRYING...

PAPERS • COATINGS
SILICONE • LATEX
CLAY

It will pay you to investigate the efficiency and economy of the new RED-RAY Type "H" Burner, latest development of RED-RAY infra red drying experience.

Write for further information to:

RED-RAY MFG. CO., INC.
318 CLIFF LANE • CLIFFSIDE PARK, N. J.
Tel.: WHitney 3-1000

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CORES CAPS

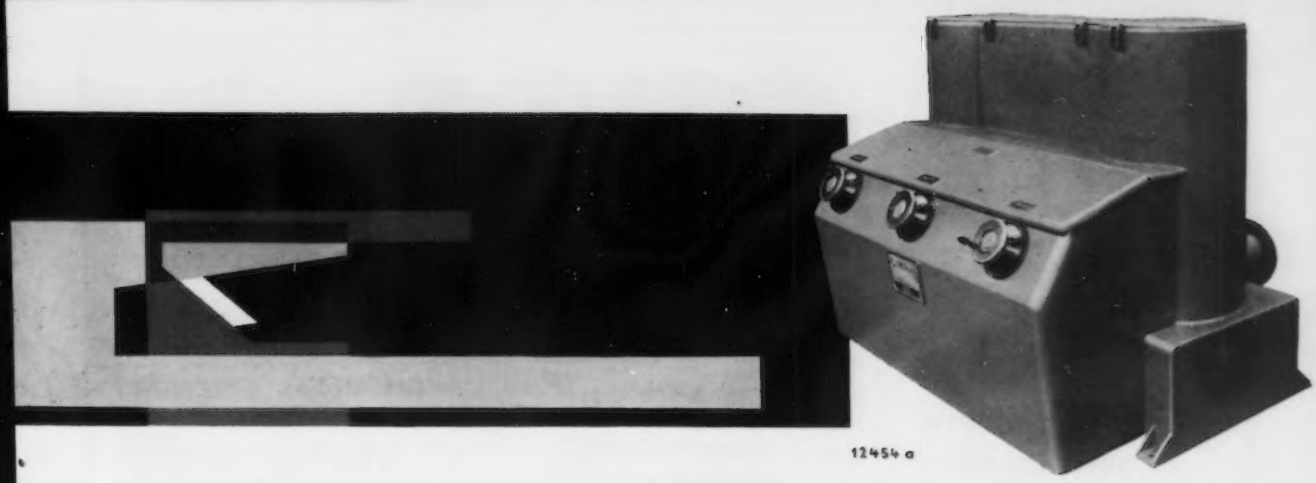
Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.



12454 a

A NEW PRINCIPLE FOR MEASURING ORIFICES

confers many advantages upon the VOITH Stock Metering Station Type M. The absence of rotating parts increases its reliability and requires no particular maintenance. The high measuring accuracy is independent of the type of furnish, its consistency and freeness. The total flow can be simply regulated through a pneumatic control cylinder actuated by the stock level. Its compactness permits the installation in restricted space. The dosing apparatus for chemicals is not any more fixed to a certain location. Its synchronism with the stock metering station is obtained by pneumatical or electrical means. We shall be pleased to advice you of the low price for a measuring orifice type stock metering station suitable for your paper machine.

J. M. VOITH GMBH · HEIDENHEIM/BRENZ · GERMANY

BEST OF THE CARTOONS

from PAPER TRADE JOURNAL

Edited by John C. W. Evans

Eighty pages of "laughs."

The humorous side of things that happen in paper and pulp mills at one time or another.

Get a copy—it will only cost you $1.25 and where could you get so much enjoyment for so little?

$1.25 per copy Postage Prepaid.

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PLANT SITES FOR PULP AND PAPER

There are many fine sites remaining for pulp and paper mills in the Seaboard Southeast, where the industry has made spectacular growth in recent years.

Furthermore, the timber resources of the region assure adequate supplies of wood for the prospective increased demands of the future.

FOR FREE SITE INFORMATION

Address:
Warren T. White
Asst. Vice President
Seaboard Air Line
Railroad Company
Richmond 13, Virginia

SEABOARD
AIR LINE RAILROAD

AMERICAN AND ENGLISH CLAYS

FOR ALL PAPER MAKING PURPOSES

ANGLO-AMERICAN CLAYS CORP.

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PAPER TRADE JOURNAL

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HELP WANTED—$1.50 (6 words to line). Minimum charge $5.00.
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FOR SALE—$1.50 a line. Minimum charge $5.00.
WANTED—$1.50 a line. Minimum charge $5.00.
OPPORTUNITIES—$1.50 a line. Minimum charge $5.00.

Classified Advertising is non commissionable.

Classified advertising space may also be purchased at $8.00 per single column inch. All classified advertisements are payable in advance.

If box number is used—75 cents additional.

Address replies to advertisements appearing under Box Number in care of PAPER TRADE JOURNAL, 49 West 45th Street, New York 19, N. Y.

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PAPER MEN

$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.
PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES
6 East Monroe, Chicago ANdover 3-1970
TP

WANTED

Executive Sales Engineer

Ambitious, aggressive, under 45 years of management calibre with proven record in machinery sales to paper industry. Successful applicant would become Sales Manager. Reply in confidence with complete resume and salary requirement to:

President
Smith & Winchester Mfg. Co.
South Windham, Conn.

A-8

Help Wanted

WANTED

MAINTENANCE SUPERINTENDENT

Mature Man, with heavy experience in supervision of electrical and mechanical preventive maintenance program. B.S. Degree in E.E. preferred. (E.E. plus M.E. would be ideal). To co-ordinate well-established maintenance departments into one efficient unit. This opening represents a real **challenge** to the right man who is able to organize by working with and through people. Pulp and Paper company located in Virginia. Salary open, commensurate with qualifications and experience. Excellent fringes and benefits.

Write, giving resume of education and experience to: Box 60-158 c/o Paper Trade Journal.

A-22

BLEACHED KRAFT PULP MILL SUPERINTENDENT

Midwestern Bleached Kraft Pulp & Paper Mill is seeking an experienced Pulp Mill Superintendent with technical background.

Excellent opportunity, salary and benefits.

Send resume, including education, experience and salary requirements.

Resumes will be kept strictly confidential.

Address Box 60-160 care Paper Trade Journal.

A-15

NORTHEASTERN Cylinder Board Mill needs qualified Chemist with some production background and technical experience. Salary open. Address Box 60-152 care Paper Trade Journal. A-22

Help Wanted

CHEMICAL SPECIALTY SALESMAN

We are looking for a young salesman with a paper background to work in the midwest out of our Chicago office. Position is newly created because of sales expansion in the paper industry and can lead to greater responsibilities. Products include defoamers, surfacants & etc.

REPLY IN CONFIDENCE

M. E. REINER
E. F. DREW & CO., INC.
15 E. 26 St., N. Y. 10, N. Y. A-8

TECHNICAL SALES REPRESENTATIVE

AAA-1 company in the machine clothing field has unusually fine growth opportunity for a technically qualified sales representative who will cover the Pen-Jer-Del area. Prefer man with technical or paper manufacturing background and three to five years experience selling to the paper industry. Age 32-45. All expenses, salary and bonus. Send resume and photo. Salary and opportunity to advance commensurate with demonstrated abilities and experience. Address Box 60-162 care Paper Trade Journal. A-15

TECHNICAL

SALES-SERVICE

Major multi-divisional, listed CHEMICAL concern has outstanding openings for men currently engaged in, or having previous experience in sales, customer service or product application of resin sizes & allied chemicals to the Paper Industry, Eastern U.S.A. location.

Technical degree desired. Position offers excellent growth potential, fibral earnings & full employee benefit program. Send complete resume including salary requirements to Director of Personnel Box #60-163 care Paper Trade Journal. A-8

WANTED — *TECHNICAL SUPERVISOR*

Technically trained college graduate, with at least 5 year's experience in Paper Industry to supervise Technical Operation and Quality Control in a Specialty Mill in Midwest.

Excellent opportunity for an ambitious man to advance to positions of greater responsibility in production. Good starting salary and additional benefits. Reply to Paper Trade Journal, Box 60-161, giving education, experience and references.

A-22

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Cable Address: "JACKROSS Newark: N.Jer" HUMBOLDT 4-8880

CANADA — 199 BAY STREET, TORONTO, ONTARIO SOUTH — P. O. BOX 2065, MOBILE, ALABAMA

SUPPLIERS OF PAPER MACHINERY TO THE WORLD — RPM

BAG MACHINERY
1—S&H 3½" to 10¼" face; 6" to 13" tube pull

BAG MACHINERY—MULTI-WALL
1—S&W 1 to 4 ply tuber; PV, SOM, & POM; 10" to 24" face; 22" to 43" pull; w/15 hp VS drive

BEATERS
2—3000# Downingtown w/60" face x 67" dia roll; like new

CALENDER STACKS
1— 80" P & J 7 roll; heavy duty
2— 82" & 86" Lobdell five roll
1— 96" B-C 6 Roll—heavy duty
1—108" B-C 5 roll
1—104" B-C 8 roll
1—115" B-C 7 roll
1—124" Downingtown 5 roll

CHIPPERS
1— 96" Murray 6 knife; A-F Brng.

COATERS
1— 24" Waldron Coater & Embosser
2— 40" Chapman Extrusion Type
2— 65" & 76" Mayers

COMPLETE MACHINES
3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 72" Trim Fourdrinier paper machine
1—B-C 100" 2 cyl. Board Machine Complete
1—M & W 72" Trim Yankee Fourdrinier
1—Rice Barton 84" Fourdrinier

CYLINDER MOLDS
1— 48" face x 42" dia.
2— 63" face x 36" dia w/rubber couches
1— 78" face x 40" dia.
1—104" face x 36" dia
1—107" face x 48" dia; A-F Brng
8—124" face x 36" dia w/rubber couches
1—131" face x 42" dia; A-F Brng
1—136" face x 54" dia; SS covering

CYLINDER WET ENDS
Downingtown single cylinder; 99" face x 48" dia.; 18" dia. couch

DRYERS—HYDROSTATICALLY TESTED

24" Dia.:
39—46" face; Chrome plated
1—156" face w/gear and steam joint

28" Dia.:
1— 70" face w/gears & bearings
3— 73" face w/gears & bearings
3— 76" face w/gears & bearings
1— 77" face w/gears & bearings
2— 84" face
2— 84" face w/accessories

36" Dia.:
1— 42" face
2— 44" face
2— 46" face
4— 70" face w/gears & bearings
11— 72" face w/gears & bearings
1— 74" face Lukenweld w/A-F Brng
1— 74" face w/gears & bearings
3— 75" face w/gears & bearings
5— 75" face
9— 76" face w/gears & bearings
1— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
2— 88" face
18— 90" face; complete section
9— 92" face; complete section
1—138" face
10—160" face

42" Dia.:
45— 96" face w/gears, frames & bearings
1—120" face
1—160" face

48" Dia.:
57— 46" face; chrome plated
12— 82" face; complete section
5— 84" face
24—106" face
11—106" face w/gears & bearings
12—110" face w/gears & bearings
4—123" face w/gears, frames & bearings
1—128" face

DRIVES ENCLOSED RIGHT ANGLE
1—Beloit 65 h.p. Ratio 2.88 to 1
3—Jones 65 hp Ratio 4.83 to 1
1—Michigan 92½ h.p. ratio 10.1 to 1
1—Phila. 28 h.p. Ratio 10.56 to 1
1—50 h.p. Reliance VS with MG set & controls
1—Cleveland 47 h.p.—ratio 3 5/9 to 1
1—Cleveland 23.5 h.p.—ratio 3 5/9 to 1

EMBOSSERS
1— 80" Hudson Sharp; A-F Brng

EXTRACTOR ROLLS—DOWNINGTOWN
2—139" face x 24" dia.; A-F Brng.

FLAT SCREENS
1— 4 plate Tailing Screen
2— 12 Plate IMPCO w/Dunbar Drives
8— 14 plate IMPCO—Bronze Vats S.S. Plates

HYDRAPULPER
1—B-C 12 ft. 550 cu. ft. with junker—batch type 150 h.p. 440/3/60 motor. Also Shartle Pump 800 g.p.m., 50 ft. head. All new 1957 —used 1 year

INLETS & HEADBOXES
1—106" Valley w/8" distributing roll
1—131" Valley w/10" distributing roll; SS lined

JORDANS
2—Appleton #1 w/A-F Brng
1—Horne w/AF Brngs
4—Shartle Miami #2 w/A-F Brngs
1—Jones Midget—Used 2 months

MOTORS 3 PH 60 CYCLE
1—100 hp GE; 440 v; 695 rpm
1—250 h.p. West. syn. 440V., 450 r.p.m.
1—300 hp West; 2200 v; 503 rpm
1—350 hp GE; 2200 v; 720 rpm; Synch

PAPER MACHINE DRIVES
1—De Laval 100 h.p. steam turbine w/reducers

PULP MILL EQUIPMENT
1—Lannoye #1 Pulper
1—Murray 2 deck Chip Screen

PUMPS—OPEN IMPELLER
1—Shartle 10 x 20 Duplex
23—Centrifugal Stock and Water Pumps

REELS
1—100" Kohler automatic two arm unwind reel; 60" dia rolls; new condition
1—109" two bowl upright
1—123" Beloit—2 bowl
1—126" Beloit Aldrich surface drive type
1—146" B & S pope type w/Reliance drive

REFINERS
2—Jones Fibremasters—Lava Filling
2—#1 Claflin; A-F Brng
1—24" Bauer Double Disc w/two 50 h.p. motors
1—24" Downingtown Weiner; new

ROLL GRINDERS
1—124" x 30" Farrel w/crowning device
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ROTARY SCREENS
5—Bird #3A, Model 100 w/copper vats
1—Jones & Leithwalk copper lined

SHEETERS—WITH BACKSTANDS
1— 50" Finley
6— 56", 60", 66" & 70" Hamblets
1— 60" Hamblet w/overlapping layboy
1— 65" Kidder w/elec. eye and layboy
1— 74" Hamblet w/motor
1— 76" Beloit Duplex
1— 82" Hamblet
1— 85" Hamblet duplex w/layboy
1—105" Hamblet
1—112" Beloit Duplex Board Cutter; A/F Brng

SLITTERS & REWINDERS

17¾" Maximum Rewind Diameter
1—42" Cameron Type 26-2A

24" Maximum Rewind Diameter
3— 42" Cameron Type 6
1— 42" Cameron Type 6 Shear Cut
1— 62" Cameron Type 8
1— 72" Cameron Type 9-5

30" Maximum Rewind Diameter
1— 52" Cameron Type 10
1— 60" Langston Shear Cut
1— 62" Cameron Type 10
1— 72" Cameron Type 10; A-F Brng
1— 72" Cameron Type 10 Shear Cut; A-F

36" Maximum Rewind Diameter
1— 70" Variable Speed Center Winder
1— 72" Cameron Model 8-10
1— 72" Cameron Type 10; A-F Brng

42" Maximum Rewind Diameter
1— 40" Egan Shear Cut; A-F Brng
1— 60" Kidder Model SH Low Bed
1— 72" Beloit Shear Cut
1— 92" B & S; A-F Brng
1—136" Cameron Type 18; A-F Brng
1—161" Cameron Type 18 w/60 hp Reliance VS Drive

48" Maximum Rewind Diameter
1— 86" M & W Four Drum Shear Cut
1—110" Langston—Shear Cut
1—152" Langston Shear Cut

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1—112" Cameron Type 18
1—120" M & W two drum w/75 h.p. drive
1—120" Langston
1—136" Langston Type DA Shear Cut; A-F

SLITTERS & REWINDERS—DOUBLE REWIND

18" Maximum Rewind Diameter
2—42" Cameron Type 26-3A
1—52" Cameron Type 26-3A

30" Maximum Rewind Diameter
1—42" Essex Shear Cut; A-F Brng.
1—42" Cameron Type 28-3
1—92" Cameron Type 28-3 w/vari-drive

STOCK CLEANERS
2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2" & 6" bronze
1—Bird Dirtec 12". Rebuilt by Bird
21—4" Vortraps—Bronze
3—Bird Centriflers—Style CFL—S.S. New

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2—Poirier; 25T/D cap.

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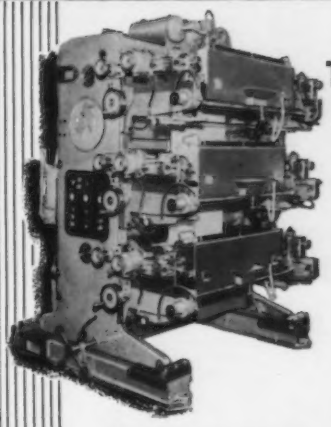

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